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Saccades

- Eye Movements

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- Cross-Culture Perspective on Bereavement Springer

Sally-Ann Task

- False Belief Task

Sand Tray Therapy

- Play-Group Therapy

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- Ambien (Zolpidem)

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SAT Reasoning Test

- Scholastic Aptitude Test

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- Scholastic Aptitude Test

Saturnism

- Lead Poisoning

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Introduction

Dr. Satz is an internationally-renowned clinical neuropsychologist who has devoted many years to advancing our understanding of human brain injuries and how effective therapeutic strategies can enhance recovery of function. His varied research interests also include dyslexia, learning disabilities, brain laterality and remediation in schizophrenia [1, 4].

Educational Information

Dr. Satz received his doctorate of philosophy in clinical psychology from the University of Kentucky, College of Medicine, in 1963. His dissertation on the block rotation task won the Creative Talent Award given by the American Institute of Research.

Accomplishments

While at the University of Florida, Dr. Satz developed the first neuropsychology research laboratory as well as the first neuropsychology clinical service. Many prominent clinical researchers have been mentored by Dr. Satz at these facilities and he also helped establish the Association of Post-Doctoral Programs in Clinical Neuropsychology [5]. In addition, Dr. Satz was one of the early founders of the International Neuropsychology Society, helped develop Division 40 of the American Psychological Association (APA), and he was awarded the APA Award for Distinguished Professional Contributions.

Contributions

Dr. Satz has made an invaluable contribution to the development of neuropsychology as a distinct research and professional discipline. He has been one the most productive researchers in neuropsychology as evidenced by more than 300 publications that he has authored and coauthored. Dr. Satz has also coauthored several books including *The Disabled Learner, Middle Childhood: Development and Dysfunction*, and *Neuropsychology of Human Emotion* (e.g., [2, 3]).

Current Involvement

Dr. Satz is currently Professor Emeritus and Chief of the Neuropsychology program at the David Geffen School of Medicine at UCLA.

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Savant Syndrome

► Idiot Savant

Savantism

► Idiot Savant

SB5

► Stanford-Binet Intelligence Scales

Scaffolding

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Synonyms

Dynamic assessment; Peer-tutoring; Zone of proximal development

Definition

A learning process by which interaction with another individual occurs, resulting in higher competency.

Description

The term instructional scaffolding is a metaphor referencing its original meaning in construction; a temporary framework to support building. Related to instruction, scaffolding is a tool (i.e., assistance from others) for an individual to reach another level of knowledge or skill that could not have been gained without assistance.

Wood, Bruner, and Ross first developed the term for pedagogical purposes, in their 1976 article, “The role of tutoring in problem solving” [6]. They described the term as a means of one on one learning through a tutoring model. This social dynamic later coined as “scaffolding” was a critical component of Lev Vygotsky’s Zone of Proximal Development (ZPD) theory. ZPD is a process by which a learner gains knowledge from interactions with their surroundings. Social interactions and their influence on a learner’s education are an important part of ZPD. Comparatively, the concepts of ZPD and scaffolding are both based on the assertion that the individual learner will acquire more knowledge through more dialectic interactions than they would if attempting to learn in isolation.

In scaffolding, speech (discourse) is a critical tool and is typically thought of as facilitating intellectual growth. However, the social process of scaffolding also facilitates the development of other intrapsychological processes that promote successful learning such as motivating the student, managing frustration, and regulating attention. Scaffolding is expected to be temporary with supports (surrounding individuals who are more knowledgeable) and should move in the direction of higher competency [4]. Scaffolds (the more knowledgeable individuals) are not limited to school teachers. They can be parents, mentors, peers, tutors or anyone who will facilitate growth in a skill or ability [2].

Relevance to Childhood Development

Tanner and Jones [5] showed that scaffolding in teaching styles effectively accelerated metacognitive skill development. Comparatively, in free play, children may be able to solve a problem without assistance but may not be aware of the relationship between the actions that created the solution. This suggests that there will not be a solid understanding of procedures for the solution of the task, which would result in the inability to use it for future tasks. Studies also show that scaffolding results in children becoming self-regulating and independent of adult help [1, 3].

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Scale Scores

- [Norm-Referenced Scores](#)

Scalloped Response Pattern

- [Fixed Interval Schedule](#)

SCC

- [Standard Celeration Charting](#)

Schema (Singular)

- [Schemas](#)

Schemas

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Synonyms

[Schema \(singular\)](#); [Schemata](#)

Definition

Schemas refer to theoretical mental structures that assist individuals in simplifying and organizing knowledge. Phrases used to describe schemas have included the following: mental frames, global knowledge structures, building blocks of cognition, organized knowledge of the world, organized memory structures, and packaged units of knowledge.

Description

Included in schemas are the prior experiences, established knowledge, and abstract representations of events, objects, and relationships in the world of an individual. An individual's schemas tend to influence what he or she perceives, understands, infers, remembers, and comprehends.

The schemas of an individual are not stagnant. As an individual lives through different experiences and gains additional knowledge, his or her schemas continue to develop. Similarly, the more experience and knowledge

an individual can add to a particular schema, the more complex that schema becomes. For example, due to the magnitude of their experiences, professional-culinary chefs hold a more complex schema for cooking gourmet meals than do inexperienced cooks.

Relevance to Childhood Development

The term “schema” is significant to the field of childhood development because it has influenced learning theories, teaching methods, and curriculum design. Two lines of work associated with childhood development and influenced by the notion of schemas are *cognitive constructivism* and *cognitive-developmental constructivism*. These two theoretical lines of work share the idea that individuals generate knowledge and meaning from their experiences. They have also been associated with the ideas of Jean Piaget [1] who focused on child-centered learning. Piaget’s belief in child-centered learning was directly related to the theoretical idea of schemas.

In addition to learning and remembering, schemas have also been linked to achievement in reading comprehension [2, 3]. A reader is able to comprehend at a higher level when he or she has a well-developed schema that relates to the content being read. In addition, a reader with schemas that are less complex is likely to find the reading selection to be difficult to comprehend. The relationship between prior knowledge and reading comprehension is explored within the realms of *schema theory*, which is associated with Rumelhart [3].

Not only has the idea of schemas influenced learning theories, it has also assisted in designing effective teaching methods and learner-centered curriculum. With these multiple areas of influence, it is clear that the theoretical idea of schemas has played an important role in child development.

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Schemata

► Schemas

Schizophrenia

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Synonyms

Childhood schizophrenia

Definition

Schizophrenia is a chronic and debilitating psychiatric illness that represents a profound disruption of the most fundamental human attributes which include, emotion, language, thought, and perception.

Description

The term *schizophrenia* was first coined by Swiss psychiatrist Eugene Bleuler in 1908 following psychiatrist Emil Kraepelin’s distinction between what he called “dementia praecox” and other forms of madness. The term schizophrenia comes from the Greek words *schizo* (split) and *phrenos* (mind) [2]. Schizophrenia is a psychiatric diagnosis denoting a mental illness in which component processes are in a state of dysregulation. These processes include neurotransmitter systems, attention and memory, formation of beliefs and abstract thinking, and performing behavioral activities in a socially meaningful context.

Schizophrenia is characterized by impairments in social functioning (e.g., work, home, school) and difficulties in caring for oneself (e.g., poor hygiene). In addition to problems in daily living, individuals with schizophrenia experience a wide range of symptoms including positive symptoms, negative symptoms, cognitive impairments, and problems dealing with the regulation of mood. Positive symptoms refer to features which are present or *added*

to an individual's typical presentation (e.g., delusions; hallucinations; bizarre, disorganized behaviors). Delusions, in particular, can be broken down into smaller subsets; persecutory delusions, delusions of being controlled, thought broadcasting, thought insertion, thought withdrawal, delusions of guilt or sin, somatic delusions, and grandiose delusions. Negative symptoms refer to features which are absent or *taken away* from an individual's typical presentation (e.g., alogia, avolition, psychomotor retardation, flattened affect, anhedonia). Positive symptoms appear to be more responsive to psychopharmacological treatment whereas negative symptoms tend to be more treatment-resistant and follow a more chronic and stable course. Cognitive impairments include difficulties with memory, planning, and abstract thinking, while problems dealing with the regulation of mood include depression, anxiety, and anger [1].

Schizophrenia has been observed across a wide range of different populations and cultures with prevalence rates among adults ranging from 0.5 to 1.5% [1]. The onset of schizophrenia typically occurs between late adolescence and early adulthood. Schizophrenia affects men and women with equal frequency although men typically present earlier (between 18 and 25) than women (between 25 and the mid-30s). Studies suggest that urban-born individuals are at an elevated risk of a formal diagnosis of schizophrenia compared with rural-born individuals [2]. Although rare, the onset of schizophrenia may also begin later in life (e.g., after age 45). For this particular cohort, the proportion of affected women is significantly greater than that of men. The risk for schizophrenia of first-degree biological relatives of individuals with schizophrenia is 10 times greater than that of the general population [1].

The course and prognosis of schizophrenia follows the "Law of 1/3's" which states that about one third of people have nearly complete remission with only mild relapses and little disruption to their daily lives, one third has a variable pattern of symptom exacerbation with more interruption to daily functioning, and the final third has chronic symptoms that impair most aspects of daily life. The life expectancy of individuals with schizophrenia is shorter than that of the general population due in most part to suicide. Approximately 10% of individuals with schizophrenia commit suicide and between 20 and 40% make at least one attempt over the course of the illness [1].

Currently, treatments in schizophrenia are not viewed as a "cure" for the illness, but rather as strategies which help manage the illness and minimize disruption in life. Psychiatric rehabilitation has emerged as an approach to organizing a diversity of treatments for the purpose of

overcoming disabilities [2]. Psychiatric rehabilitation efforts, in general, target multiple levels of functioning to optimize treatment outcome and prevent relapse.

Relevance to Childhood Development

The essential features of schizophrenia are the same in children as they are for adults, although a formal diagnosis of schizophrenia may be particularly difficult to make for this age group. Delusions and hallucinations may be far less elaborate in children than in adults and visual hallucinations may be more common. The presence of disorganized speech may also present complications in assigning a formal diagnosis of schizophrenia in children. A number of childhood disorders possess symptoms comparable to those of disorganized speech (e.g., Communication Disorders, Pervasive Developmental Disorders) as well as disorganized behavior (e.g., Attention-Deficit/Hyperactivity Disorder) [1]. These symptoms should not be attributed to schizophrenia without further consideration of these more common childhood disorders.

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Schizophrenia Spectrum disorders

► Childhood Schizophrenia

Scholastic

► Academic Achievement

Scholastic Achievement Test

► Scholastic Aptitude Test

SAT

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Synonyms

SAT-I; SAT reasoning test; Scholastic achievement test;
Scholastic aptitude test; Scholastic assessment test

Definition

The SAT is a standardized, high-stakes college entrance examination widely taken by students throughout the United States. It consists of three distinct parts: a mostly multiple-choice verbal section, a multiple-choice mathematics section and, as of 2005, an essay section.

Description

The SAT Reasoning Test is a standardized, high-stakes college entrance examination widely taken by students throughout the United States. It is nearly a century old, being first administered in 1926 and initially largely developed by Carl Campbell Brigham (1890–1943) who had earlier worked on the Army Alpha and Beta intelligence tests. The test itself was originated for and is owned by the College Entrance Examination Board, and is administered by the Educational Testing Service (ETS). The chief rival of the College Board is American College Testing, who publishes the ACT test; traditionally the SAT was taken primarily by students on either coast of the United States and the ACT was taken by Midwesterners. Until 1990, the SAT was known as the Scholastic Aptitude Test; between 1990 and 1993, the test was known as the Scholastic Achievement Test. Currently, the College Board does not attach any official meaning behind the acronym “SAT” although the test is still sometimes referred to by an earlier name such as the Scholastic Achievement Test in the research literature. The SAT Reasoning Test stands apart from the various SAT subject tests that are also offered by the College Board.

Neither the College Board nor ETS describe the SAT as an intelligence test, although research does indicate high correlations between SAT scores and overall general intelligence or *g*. The College Board currently describes the SAT Reasoning Test as an assessment of critical thinking skills. Since the 1960s, the College Board has released descriptive data on every SAT as a public service, which has led some researchers to use SAT scores as an estimate of the quality of overall high school education throughout the United

States; this unintended use may not be valid. Regardless, both the College Board’s research and research done in academia agree that the SAT is a predictor of college grade point average, making the SAT a heavily-weighted factor in most admissions processes. The new SAT Reasoning Test’s predictive ability is about the same as the older versions.

The current version of the SAT Reasoning Test contains three components, each worth between 200 and 800 points, and with a mean of about 500. Each of those components, in turn, consists of three sections. There is also an unscored section consisting of new items that are being piloted for potential future use. Thus, the final SAT score ranges from 600 to 2,400, based on the nine scored sections of the test. Aside from the first and last sections of the test, the sequence of the remaining sections is jumbled. The SAT is a timed test, taking a total of three-and-three-quarters-of-an-hour for the student to complete (not counting time spent receiving instructions). Students within the United States and its territories may take the SAT at seven different times of the year, whereas students elsewhere may take it at six different times.

The critical reading section of the current SAT replaces what was formerly known as the verbal section of the test, and is largely concerned with answering questions based on reading passages instead of the analogy-type questions that used to appear on the SAT. The mathematics section of the current SAT includes higher-level questions than did the older SAT, which did not require more than basic algebra, and omits the quantitative comparison-type questions in favor of more straightforward items. The writing section of the current SAT is similar to the old SAT writing subject test and consists of both an extended essay as well as multiple choice items directed toward issues related to fluent writing and revision techniques. The essay topic itself is broad enough to be accessible to the widest possible variety of students’ socioeconomic background and, in fact, many of the changes made to the SAT Reasoning Test in general seem to reduce the possibility of ethnic and racial bias that some researchers reported in earlier editions.

As colleges overall expanded their pools of applicants and the demographics of the average group of students taking the SAT changed, the average SAT score declined from the 1960s to the 1980s. This decline, coupled with concerns over the thresholds needed for admission to select colleges, has partially led to two distinct trends. The first is the rise of the test-prep program; companies such as the Princeton Review and Kaplan offer courses which, some research shows, increase students’ scores on tests like the SAT. The second is the trend within some

mostly liberal arts schools to diminish the importance of SAT scores in favor of high school grade point averages and other, more subjective, criteria.

Relevance to Childhood Development

The SAT has provided a rite-of-passage for generations of American adolescents as they prepare to transition to an adult life beyond their high school experience. Given its status as a rigorously designed standardized test developed by a premier testing company, the SAT was (and still is) a key component to acceptance into competitive college programs and thus the results of the test are extremely high-stakes. Long before the standardized testing boom that emerged in response to the *No Child Left Behind* act, both the SAT and the stress accompanying preparation for it, were well known to both parents and children. As perhaps the highest-profile standardized test taken by the greatest number of Americans, the literature concerning the SAT exemplifies the strengths, weaknesses, and controversies surrounding standardized educational tests.

Acknowledgement

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Scholastic Assessment Test

►Scholastic Aptitude Test

Scholarship

►Literacy

School Adjustment

►School Readiness

School Climate

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Synonyms

Classroom climate; School culture

Definition

School climate is often referred to as the social atmosphere of a setting or learning environment in which students have different experiences, depending upon the protocols set up by the teachers and administrators.

Description

There are many key components that make for a positive school climate. It may be described as an orderly environment in which the school family feels valued and able to pursue the school's mission free from concerns about disruptions and safety. Providing a caring and safe atmosphere are two essential factors that are often mentioned. Research on school climate often indicates several environmental conditions as being critical in establishing a positive school climate. These include the following:

- A physical environment that is welcoming and conducive to learning
- A social environment that promotes communication and interaction
- An affective environment that promotes a sense of belonging and self-esteem
- An academic environment that promotes learning and self-fulfillment

Research shows that school climate can affect many areas and people within schools. For example, a positive school

climate has been associated with fewer behavioral and emotional problems for students. Additionally, specific research on school climate in high-risk urban environments indicates that a positive, supportive, and culturally conscious school climate can significantly shape the degree of academic success experienced by students. Furthermore, researchers have found that positive school climate perceptions may supply high-risk students with a supportive learning environment yielding healthy development, as well as preventing antisocial behavior. School climate research suggests that positive interpersonal relationships and optimal learning opportunities for students in all demographic environments can increase achievement levels and reduce maladaptive behavior.

Regarding the roles of teachers and administrators, it has been found that a positive school climate is associated with increased job satisfaction for school personnel. Finally, student perspectives are important during the transition from one school level to another. Attending a new school can be frightening for students and this apprehension can adversely affect students' perceptions of their school's climate and learning outcomes. Therefore, research has shown that providing a positive and supportive school climate for students is important for a smooth and easy transition to a new school.

Educators and parents have multiple options to enhance school climate and students' overall educational experience. The following is a sample list of possible interventions to improve school climate:

- Increased parent and community involvement
- Implementation of character education or the promotion of fundamental moral values in children
- Use of violence-prevention and conflict-resolution curricula
- Peer mediation
- Prevention of acts of bullying
- Teachers and principals treat students fairly, equally and with respect
- Implementing programs that encourage a safe environment for staff and students
- Personalization through adopt-a-kid programs, honoring most-improved students, and block scheduling

Many researchers have developed measures of school climate. Examining these measures and the attributes specifically assessed provides further detail into the nature of school climate. These assessments consider multiple factors and individuals within the school system using direct measures, such as surveys and interviews, and indirect measures, such as disciplinary and attendance records. The School Climate Survey contains seven dimensions of

school climate and specifically assesses students' perceptions in the following areas:

- Achievement motivation
- Fairness
- Order and discipline
- Parent involvement
- Sharing of resources
- Student interpersonal relationships
- Student-teacher relationships

The Charles F. Kettering Ltd. (CFK) School Climate Profile is also widely used to measure school climate. This survey is comprised of four sections and is given to teachers, administrators, and students. Part A, the General Climate Factors, is comprised of the following eight subscales [9]:

- Respect
- Trust
- High morale
- Opportunity for input
- Continuous academic & social growth
- Cohesiveness
- School renewal
- Caring

Relevance to Childhood Development

School culture and school climate are useful terms for the intangibles that can affect learning. As such, they deserve serious attention in the effort to improve performance. Comprehensive models that have been developed for school reform have invariably included change in school culture and school climate.

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School Culture

► School Climate

School Dropout

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Synonyms

School leaving

Definition

School dropout is defined as leaving school without a high school diploma.

Description

School dropout is of great concern in the United States as a significant number of students leave before earning a diploma. Current estimates place the overall dropout rate at 9.4% [14]. This estimate is even higher among students with disabilities, as well as low income and ethnic minority students [8]. For example, in 2000–2001, 41.1% of students age 14 and older with disabilities dropped out of school [13]. Low income students are more than twice as likely to leave school early when compared to middle-income students and about ten times more likely than students from high-income families [4]. In 2005, the dropout rates for Hispanic and African-American students were 22.1% and 10.4%, respectively [14]. Compared with individuals who complete high school, dropouts have fewer employment opportunities and, if employed, earn significantly less [3]. Further, school dropout negatively affects the economy, as billions are spent on welfare, unemployment, and crime prevention to support school dropouts who are more likely to be unemployed,

receive public assistance, and be imprisoned [7]. Given the prevalence and negative consequences of school dropout, legislation such as No Child Left Behind (NCLB) was put in place to hold schools accountable for student achievement and success. NCLB requires all school districts to provide a yearly report of students' performance and statewide assessments as well as school dropout and graduation rates.

Individuals usually decide to drop out of school by tenth grade when they are at the age of 16 to legally make that choice. Numerous risk factors involving the individual student, student's family, school, and community typically result in the decision to leave school. Such risk factors may be placed in three broad categories: (1) social background including factors such as race/ethnicity, gender, socioeconomic status [SES], family structure, and inner-city residence; (2) academic background including factors such as ability, test scores, history of grade retention, school engagement, school grades, course failures, truancy, and behavioral problems; and (3) school characteristics including structure and school social organization [9].

Social Background

School dropouts are more likely to be boys than girls, and more likely to be individuals from racial and ethnic minority groups, low-income families, single-parent households, highly stressful (e.g., divorce, death, marriage) households, born to teenage mothers, and from families in which one or both parents also did not complete high school [10]. Among these factors, parents' educational level seems to have the most consistent effect on school dropout. Specifically, low parent educational level seems to increase the likelihood of school dropout because such parents are less likely to be able to teach their children basic prerequisite skills for learning. Children who start school without the basic skills for learning tend to perform poorly in school. Low academic achievement tends to increase students' alienation from school, leading to absenteeism, which in turn increases the risk for school dropout [12].

Academic Background

Poor academic achievement is one of the strongest predictors of school dropout. Specifically, students who eventually drop out of school typically have a history of failing courses, receiving low grades even as early as the first grade, taking lower level courses in middle and high school, being retained at least one year and receiving special education services. They also typically have

a history of behavioral problems, low engagement in classroom via frequent absences, lack of classroom participation, inattention, and disengagement in school functions and extracurricular activities [5].

School Characteristics

The school's structure and social organization have been linked to school dropout. Schools are organized in a way that "push" out some types of students, particularly those who manifest the social and academic characteristics mentioned above [9]. School structure, which includes sector and enrollment, is an important factor related to school dropout. For example, private schools (e.g., Catholic schools) and schools with smaller student population have been found to have lower rates of school dropout than public and urban schools [11] as the former are often described as more favorable learning environments for students. Interviews with individuals who have dropped out of high school revealed that a large number often leave school due to negative relationships with teachers and/or peers; they believe their teachers do not care about them or their progress in school, and are unwilling to support them when problems arise [5].

Among the various characteristics within the three broad categories associated with school dropout, poor academic performance, low SES, and behavioral problems seem to be the three main risk factors [10]. Further, the combination of two or more risk factors increases the likelihood of school dropout [5].

Relevance to Childhood Development

School dropout is a serious problem that has profound consequences for the individual student, the school system, the community, and society at large. The decision to leave school does not happen overnight and is often the end product of a combination of multiple social, academic, and school risk factors that begin early in life [2]. Some risk factors are present as early as the first grade (e.g., receiving low grades, behavior problems, receiving special education services), while others are present even before school enrollment (e.g., single-parent households, low parent educational level, poverty, and ethnicity). Therefore, prevention and intervention programs across different settings (i.e., school, family/home, and community) targeting school dropout risk factors should be in place from early childhood and sustained throughout the school years, in order to prevent and reduce the likelihood of school dropout in later years. Some school-level programs that have been advocated include: (1) eliminating grade retention; (2) individualizing school programs to meet

students' needs; (3) providing counseling services; (4) providing supportive learning environments that allow students the opportunity to be successful; and (5) providing a balance of academic and extracurricular activities [6, 10].

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School Leaving

► School Dropout

School Performance/Achievement

► Academic Achievement

School Psychologist

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Definition

A psychologist trained in psychology and education whose aim is to enhance the potential of children.

Description

School psychologists are professionals who have completed graduate study in the areas of psychology and education. The training of school psychologists is guided by *Blueprint III*, a statement on the training and practice of school psychologists developed by leading experts in the field [3]. The field of school psychology works to enhance the academic, emotional, and social potential of children [2]. School psychologists assist with the development and implementation of prevention and intervention efforts for children. School psychologists use consultation and assessment measures to assist in these efforts. Many times school psychologists are employed to work within schools to accomplish these goals. However, school psychologists may work in other settings such as hospitals, health centers, private practice, and university settings. School psychologists work with educators, parents, community advocates, school administrators and others to enhance the learning environment for students. The National Association of School Psychologists is the professional organization for the field of school psychology. Division 16, the Division of School Psychology, of the American Psychological Association has also helped to develop the profession of school psychology through research activities and advocacy. Both organizations have developed a code of ethics to help guide the profession [1].

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School Psychology

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Definition

School psychology is a field of study and professional practice focusing on the educational and psychological needs of children, youth, and families. Although closely related to many other fields such as clinical and counseling psychology, developmental psychology, applied behavior analysis, special education, education, and school counseling, school psychology is a unique discipline. It requires training in child development, learning, behavior, motivation, and mental health, to name a few, as well as in the assessment, consultation, and intervention of these domains.

Description

School psychology is a relatively young field that is rooted in child development, clinical psychology, and special education. The origin of school psychology is generally traced to Lightner Witmer's establishment of the first psychological clinic at the University of Pennsylvania in 1896. However, development and use of the terms *school psychology* and *school psychologist* did not emerge until approximately two decades later when Arnold Gesell was first appointed to the position of *school psychologist* [1]. The first comprehensive picture of the field was assembled at the Thayer Conference of 1954, during which the training, credentialing, and practice of school psychology were delineated [3]. Descriptions of and practices within the field have evolved substantially, accompanying economic, social, and legal impetus. Currently, the two most influential bodies in the field are the National Association of School Psychologists (NASP) and the Division of School Psychology (Division 16) of the American Psychological Association (APA).

With clear ties to both psychology and education, APA and NASP have similar descriptions for the profession of school psychology. Both emphasize concern for the development, mental health, and education of children and

adolescents; collaboration and consultation with parents, educators, and other professionals; and the provision of services within the context of educational settings, although school psychologists are not limited to those settings [3]. However, NASP and APA currently disagree on the minimum requirements for becoming a school psychologist, with the former advocating a specialist degree and the latter a doctorate degree. Additionally, APA regards school psychology as a specialty within the broader field of psychology rather than as a separate profession. This distinction is reflected in the beginning of APA's archival definition of school psychology found on their website: "a general practice and health service provider specialty of professional psychology that is concerned with the science and practice of psychology with children, youth, families; learners of all ages; and the schooling process."

Another approach to defining the field of school psychology is to examine the roles and responsibilities of a school psychologist. According to NASP, the major roles assumed by most school psychologists include consultation, evaluation, intervention, prevention activities, research, and planning. School psychologists collaborate with parents, educators, administrators, and other service providers in order to develop interventions for particular student problems and to strengthen communication and relationships between all parties involved. Assessments are conducted in order to evaluate eligibility for special education services, current academic skills (e.g., achievement testing, curriculum-based testing), aptitude for learning (e.g., intelligence testing), behavioral and social-emotional status, and school and classroom environments. Assessment results are linked to appropriate interventions, which may be designed for individual students, groups of students, or families. Interventions may involve counseling, crisis responses, implementation of behavior management plans, and the allocation of more intensive and individualized academic support. Preventive efforts largely center on the delivery of training to parents and school personnel, the development of programs to improve the physical and psychological health and safety of students, and the effectiveness and efficiency of instructional delivery.

Specific responsibilities of school psychologists vary widely and depend on a number of factors: where school psychologists work, academic preparation and specialization, degree (e.g., specialist versus doctorate) and licensure attainment, size and location of the employment setting, and state laws governing educational practices and services. Although the majority of school psychologists work in public and private school districts, many are

also employed in clinics and hospitals, universities, residential settings, and private practice. Some responsibilities performed by school psychologists working in school districts (e.g., serving on Individualized Education Plan team meetings) are not likely to be performed in other settings. Academic preparation (e.g., extent of counseling focus), specialization in a particular area of study (e.g., autism, behavior disorders), and the attainment of a certain degree or license may impact a school psychologist's employment setting and job description. For example, a doctorate degree is the minimal requirement for employment in private practice.

School psychology practices are guided by federal legislation, state legislation, and case law; thus, variability exists between states. All school psychologists are impacted by a prominent federal special education legislation known as the Individuals with Disabilities Education Improvement Act (IDEIA), among others, although states may make even more stringent requirements as they are permitted some flexibility in how they implement the federally mandated services. For example, IDEIA requires that assessments be conducted in a multifaceted, multi-informant, and nondiscriminatory nature, yet school districts differ in their current assessment practices for identifying learning disabilities (i.e., some administer traditional standardized testing while others use brief, repeated measures of performance to monitor students' responsiveness to appropriate and increasingly intensive interventions).

Differentiating school psychology from related fields in education and psychology is particularly important due to overlap that exists between services provided and academic preparation, as well as the widespread tendency to equate school psychology with school counseling. Compared to school counselors, school psychologists tend to receive more training in individual assessment methods and intervention techniques, have historically focused more on students with disabilities, and often have more schools and larger numbers of students to serve. Although the terms *educational psychology* and *school psychology* are sometimes used interchangeably, they have separate divisions within APA (15 and 16, respectively), with the former placing a greater emphasis on research and the latter on applied practice. School psychology programs are often found in university departments of education, although occasionally they are enveloped in psychology departments. School, clinical, and counseling psychology are collectively considered the three health care areas of professional psychology, all of which can lead to the title of board-licensed psychologist. Despite the similar focus on working with children, adolescents, and families, clinical

and counseling psychology generally do not prioritize school and educational issues.

Changes in the field of school psychology are continually occurring, enhancing the effectiveness of the field by identifying demands on the profession and assessing the current ability to meet those demands. One major trend is the shift from the focus on assessment practices for purposes of identifying students for special education eligibility (leading to school psychologists being described as “gatekeepers” to special education services) to a tiered-model of preventive service delivery. Specifically, primary prevention activities (directed at entire classes, schools, or districts), or at least secondary prevention activities (i.e., early identification and intervention of academic, social, and emotional issues), are being stressed to reduce the need for more individualized, intensive, costly, and potentially stigmatizing interventions later [5]. Also, the emphasis on training culturally and linguistically diverse school psychologists, or at least preparing psychologists that are knowledgeable and sensitive to cultural issues that impact child development, family functioning, and academic skill acquisition, continues to increase, especially in response to the growing population of students who are bilingual and monolingual enrolling in public schools in the United States. As Reschly and Ysseldyke [4] contend, “the past is not the future” for school psychology, especially considering the current paradigm shift toward increased problem-solving, accountability, and practices designed to make improvements in the lives of children rather than mere predictions. Substantial changes are expected to occur on an international level, considering that school psychology is still in its infancy in many countries [2].

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School Readiness

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Synonyms

Academic readiness; School adjustment; School transition

Definition

School readiness refers to the competencies a child possesses upon school entry that are essential to academic and social development.

Description

School readiness has been emphasized as early as 1836, after compulsory education laws were passed which mandated all children to attend formal education. During the past 40 years, there has been an increase in early childhood programs as well as research literature investigating school readiness. Programs began to foster and teach academic and social skills that are necessary for all children to develop in order to succeed in school. During this time, early childhood programs were targeted at low-income children in hopes of enhancing their development through educational, health, and family services. The rising concern and awareness of the importance of young children entering school with adequate skills have been a result of initiatives and policies such as the National Education Goals (2000), the National School Readiness Indicators Initiative (2004), and the reauthorization of the School Readiness Act (2005). These policies support individual success of young children around the country and require quality standards for early childhood programs.

Although school readiness has varied definitions, five areas of development are considered to be the most significant domains of a young child and should be assessed by educators and families upon school entry: (1) physical well-being and motor development, (2) social and emotional development, (3) approaches to learning, (4) language development, and (5) cognitive development and general knowledge.

Physical well-being and motor development include the child's physical health status, disabilities, and motor abilities, such as gross and fine motor skills. Social and emotional development refers to the child's ability to interact appropriately with others and self-regulate their emotions and behaviors. This type of development allows the child to interpret and express their own feelings as well as understand feelings of other people. Approaches to

learning refer to the child's utilization of skills and knowledge, such as persistence and enthusiasm as well as the learning styles and habits a child uses to approach learning. Language development refers to the child's communication skills, such as speaking, and the beginning stages of literacy, such as print awareness and letter-sound associations. Lastly, cognitive development and general knowledge relate to the child's ability to develop thinking and problem solving skills which includes mathematical knowledge and imagination. All of these domains are considered complementary to one another and are taken together in order to understand how the child is developing.

Relevance to Childhood Development

The first five years of childhood are vital to development. Children are exposed to many experiences and environments, which set the stage for future development and learning opportunities. These experiences also shape the brain development of the child, given the rapid brain growth and neuronal connections during these years. Therefore, it is important to provide early opportunities for children to develop academic and social skills that will assist them to become ready for school. In addition to schools, children's families and communities help prepare them for school entry by providing enriched environments which support the child's development in the physical, social, emotional, language, literacy, and cognitive domains.

Researchers have investigated children attending high-quality early childhood education programs (e.g. Pre-Kindergarten) and have found various benefits. These include increased cognitive and language development, increased reading and math achievement, and the promotion of social and behavioral skills in children. These skills, when present at school entry, are likely to have positive, long-term effects which persist into elementary school and are strongly correlated with later skills. Low-income children, who are typically considered to have unfavorable educational outcomes, also benefit from attending high-quality early childhood education programs. These programs build a strong foundation of learning and teach necessary skills for school entry.

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School Situations Questionnaire

► Barkley School Situations Questionnaire

School Transition

► School Readiness

School-Entry Skills

► Learning Readiness

Scop-Dex (Mixture with Scopolamine)

► Dextroamphetamine (Dexedrine, Dextrostat)

Second Generation Antipsychotics

► Atypical Neuroleptics

Secondary Encopresis

► Encopresis

Secondary Process

► Reality Principle

Secondary Reinforcement

► Token Economies

Second-Culture Acquisition

► Cultural Assimilation Model

Secular Trends

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Definitions

Marked changes in physical development that have occurred over generations.

Description

Secular increases in height, weight and early maturation are currently the subject of multiple studies. Childhood growth rates have increased dramatically over the past 50–100 years. Advancement in medicine and technology as well as marked increases in standard of living and nutrition have been cited as core factors in secular trends over the past century. Secular increases in the areas of *maturation* and *growth* have been observed in developed countries, while underdeveloped countries have exhibited modest to no alteration in these areas.

Improved environmental conditions within a general population have resulted in secular increases, while delayed size and maturation may be attributed to the presence of negative or adverse conditions. Industrialized and developing countries are also witnessing an increased elderly population, increased life expectancy and decline in mortality.

Relevance to Childhood Development

The most important and widely studied aspect of secular trends is the age of onset of *puberty* in girls. Recent comparison studies of the United States and other countries have provided conflicting data regarding the decreasing of the age of onset of puberty and the development of *secondary sex characteristics* in young girls. Factors affecting the age of onset include environmental conditions, ethnicity, geographical location, nutrition and race. According to studies, the age of puberty onset in American girls over the past 40 years has decreased from 0.5 to 1.0 years, with African-American girls maturing 0.5–1 year earlier than Caucasian girls. Studies suggest 1 in every 7 Caucasian American girls and 1 in every 2 African American girls develop breasts and pubic hair by the age of 8. Additionally, data suggest that the age of first menstruation of girls from the United States has decreased from 17 to 13. Data suggesting the decrease in puberty age of onset were supported during a study of Chinese school-girls in Hong Kong, where the sexual maturation median age is one of the earliest in the world; the median age of puberty onset was 9.78 years, pubic hair development was 11.6 years and menarche was 12.4 years. While the United States and other countries have displayed a decrease in age of onset of puberty, the trend was not supported during an evaluation of Northern European countries. Several theories have been purported to explain the decrease in puberty onset age including weight gain, hormones in meat and milk, and sexualized images provided by the general media. Additional theories are being considered, but possess insufficient data and further research is required.

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Selective Attention

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Synonyms

Focused attention

Definition

Selective attention refers to the ability to maintain a cognitive set in the presence of background noise or distraction [1]. Selective attention acts like a filter that blocks some channels while allowing others to be processed [2]. While Sohlberg and Mateer [7] distinguished between focused and selective attention by relating the “ability to respond discretely” to specific stimuli to the focusing aspect of attention and the capacity to avert distractions to selective attention, Miller [4] suggested that selective attention has been used as an interchangeable term for focused attention in the neuropsychology literature.

Description

Models of attention commonly divide attention into component processes such as alertness/arousal, selective or focused attention, divided attention, alternating attention, and sustained attention or vigilance, of which selective/focused attention is one of the most studied aspects in attentional functioning [3, 8]. Vanderploeg [10] additionally indicated that there is a great deal of overlap among the various attentional models built; selective attention or an attentional focus is one of the six basic factors appearing to encompass the components described by the different researchers. Other basic factors of attention proposed include arousal, capacity, control of the attentional capacity system, sustainability/vigilance, and appraising of stimuli.

Selective attention involves initial concentration directed toward a particular activity and then execution of inhibition of responses to some stimuli over the targeted activity; it enables an individual to choose to pay attention to a specific stimulus and ignore potential external and internal distracters [4]. Mirsky [5] illustrated the ability to scan an array of stimuli and selectively respond as focus-execute, in which focused attention is the perceptual ability to scan a stimulus array, while the execute component is the ability to make a response. Similarly, Lezak [3] refers to selective attention as the capacity to highlight important stimuli or ideas being dealt with

while holding the awareness of competing distractions in check. Such capacity is commonly referred to as concentration.

Neuroanatomy of Selective Attention

According to Mirsky and his colleagues [5], the brain structures involved with the regulation of selective/focused attention are the superior temporal cortex, the inferior parietal cortex, and the corpus striatum structures (including the caudate, putamen, and globus pallidus). Posner and Peterson [6] believed that selective attention was linked to the functions of the anterior cingulate and the supplemental motor areas.

Relevance to Childhood Development

Most investigators conceive of attention as a system in which processing occurs sequentially in a series of stages within different brain systems involved in attention. Disorders of attention may arise from lesions involving different points in this system. An attention task requires a focused, selective, sustained, and effortful performance; therefore, assessing the performance of the various points in the attention system will be imperative in indicating aspects of impairments in attentional functioning. Examples of neuropsychological tests that measure selective attention include the Auditory Attention subtest of the Woodcock-Johnson III Tests of Cognitive Abilities (WJ-III) [9] and the Stroop Color-Word Test (SCWT). On the WJ-III, the examinee must overcome the effects of auditory distractions (background noise) to understand oral language. On the SCWT, the examinee is required to selectively attend to the color of the ink that the word is printed in and name that color while ignoring the word itself that actually names a color that is different from the color of the ink [4]. Slow or hesitant performance on this part of the Stroop task may be indicative of difficulty concentrating and warding off distractions, which may suggest impaired selective attention [3].

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Selective Mutism

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Synonyms

Aphasia voluntaria; Elective mutism; Functional mutism; Mutism; Reluctant speech; Voluntary mutism

Definition

Selective mutism is a type of childhood anxiety disorder in which a child does not speak in certain social situations where speech is expected despite speaking in other situations. The child's mutism must persist at least 1 month (not including the first month of school), and the mutism cannot be due to a lack of comfort with or knowledge of the language required in the social situation. The child's silence must not be better accounted for by other disorders (e.g., communication disorder, pervasive developmental disorder, schizophrenia), and this disorder is typically presented before age 5 years; however, it may not be identified until the child enters school. Finally, the child's failure to speak must interfere with his or her educational or occupational functioning or with his or her social communication [1]. In the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* the term Selective Mutism replaces the former term, elective mutism. This change in terminology better reflects the non-oppositional nature of the disorder.

Description

Selective Mutism (SM) was first identified as aphasia voluntaria by Kussmaul in 1877 as being a condition where individuals who had the ability to speak would not speak in certain situations or to certain individuals. Children with selective mutism consistently fail to speak in

certain social situations where speaking is expected, such as in school or with peers. However, these children do demonstrate the ability to speak in other situations. Often, a child with selective mutism will speak at home but not in a school or community setting. The child may communicate in nonverbal ways such as with gestures of the body, hands or head or by pushing and pulling. In some cases the child may make short mono-syllabic utterances or use an altered voice. Children with selective mutism are often shy, socially withdrawn and afraid of embarrassment.

Selective mutism has historically been characterized as a rare disorder with prevalence rates of less than 1% [1]. However, according to a study conducted by Kopp and Gillberg [13], the prevalence rate may be much higher. Moreover, selective mutism appears to be more prevalent in girls in clinically-referred samples [14]. In clinical settings, children with selective mutism are usually also diagnosed with an anxiety disorder, often social phobia.

Etiology of SM. The cause of selective mutism is unknown; however, recent work in the literature indicates that selective mutism may be a variant of an anxiety disorder, specifically social phobia [3], and may represent the severe end of the spectrum of social anxiety and speech inhibition [4]. Often there is a close relative or parent who has a history of exhibiting significant shyness, anxiety disorders and/or SM [17]. Other possible theories proposed as explanations for the cause of SM suggest that it is the result of traumatic experiences such as abuse, divorce, death, a life threatening experience and moving frequently [15].

Assessment of SM. When assessing for SM it is important that a comprehensive evaluation is conducted to rule out any other disorders. A comprehensive assessment should include a physical examination and medical history, and a developmental history of language, motor, cognitive, and social milestones. Psychological assessment of the child's current social and emotional functioning is necessary along with assessment of the child's cognitive and academic skills. In order to aid in treatment planning, a functional behavioral assessment should be completed to determine in what settings and to whom the child speaks so that intervention may target those settings and individuals [9].

Relevance to Childhood Development

Given that one of the diagnostic criteria of selective mutism is impairment in educational functioning and/or social communication, children with this disorder typically present with academic and social/emotional

difficulties such as delayed word attack and oral reading skills, limited opportunities for social interaction, and less involvement in school activities. Moreover, the ability of teachers and other school professionals (e.g., school psychologists) to assess academic and intellectual functioning may be impaired due to the child's reluctance to speak when queried. Because a child's mute behavior becomes more entrenched without intervention as time passes, and because of the possible negative impact of selective mutism on a child's educational and social functioning, early intervention is most beneficial [10]. Chronic anxiety symptoms can develop into adult social anxiety or social phobia, and people who were afflicted with selective mutism as children may continue to experience discomfort in social situations and difficulty conversing with others.

Although selective mutism is classified as a Disorder Usually First Diagnosed in Infancy, Childhood, or Adolescence, some researchers suggest it would be better categorized as an anxiety disorder. This conceptualization informs current treatments. Treatments include psychotherapy, cognitive-behavioral therapy and/or medication. It is important to identify and treat any specific speech or language related problems. Medications used to treat social phobia have been used successfully to treat children with selective mutism. Research indicates that selective serotonin reuptake inhibitors (SSRIs) may be the most effective type of medication in cases of selective mutism that are resistant to behavioral and psychosocial treatments; SSRIs include fluvoxamine (Luvox), sertraline (Zoloft), and fluoxetine (Prozac). Interventions that focus primarily on family functioning have shown some effectiveness, but current treatment trends that call for integrating families into treatment implementation are gaining popularity. Behavioral techniques incorporating the child and the environment into the assessment and intervention process are the most frequently used methods and are quite effective. Systematic desensitization is one type of behavioral intervention that has been applied to selective mutism. Behavioral interventions that include the use of reinforcement, token procedures, self modeling, self monitoring, prompting, stimulus fading, and response initiation procedures have proven to be successful in treatment [15]. The most effective treatments include an in-depth analysis of the child and the environment in order to design treatment plans that are tailored to the client. These treatments focus on altering the interpersonal and environmental factors that are contributing to symptoms of selective mutism. Multidimensional approaches address behavior and family systems and may incorporate medication if acceptable to the family.

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Selective Serotoninreuptake Inhibitor (SSRI)

► Paxil (Paroxetine)

Self

► Self-Concept

Self Identity: Sexual Abuse of Adolescents

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Synonyms

Child rape; Sexual assault; Sexual exploitation; Sexual maltreatment; Sexual molestation; Sexual victimization

Definition

Child sexual abuse is sexual contact with a child that occurs as a result of force or in a relationship where it is exploitative and unequal because of an age difference or caretaking responsibility. Sexual abuse appears to disrupt the progression of self-identity formation; these disturbances may include identity diffusion, fragmentation of self, and distortions in body image.

Description

A wide variety of behaviors are encapsulated in the definition of child sexual abuse, including rape, molestation, prostitution, or incest with children and the creation of pornography. In addition to certain sexual behaviors, child sexual abuse has a number of characteristics. These include lack of consent, ambivalence, exploitation, secrecy, force, and intent [1]. Prevalence studies reveal that females are the most frequent victims of child sexual abuse, but males are likely to be abused at earlier ages, for shorter durations, and the perpetrator is more often a stranger or nonrelative. Sexual abuse can occur at any point from infancy through adolescence [1, 2]. For all children, poverty has been found to be an important risk factor. For girls, other factors that increase the risk of

victimization include: the presence of a stepfather; a sexually punitive mother; living separately from the mother; emotional distance from the mother; and having two or fewer childhood friends [1, 2].

Relevance to Childhood Development

Depending on their developmental stage, children may be particularly susceptible to the adverse effects of sexual abuse due to their dependency on adults for care and protection, their limited ability to influence the events and environment in which they live, and their cognitive and emotional developmental level [3]. A number of interactive factors probably make a significant contribution to the development of negative self-representations in sexually abused children. The age at which the first abusive incident took place, the duration and severity of abuse, the relationship of the perpetrator to the child, and the use of force by the perpetrator, collectively influence the severity of psychological symptoms that present during and following sexual abuse [1, 3–6].

The literature concerning the psychological consequences of sexual abuse for the period of childhood and adolescence indicates a broad range of adverse effects including affect dysregulation, disruptive and aggressive behaviors, precocious sexualized behaviors, insecure and atypical attachment patterns, sexual identity confusion, impaired peer relationships, conversion disorders and academic underachievement [4–10]. Progression of the psychological effects of child and adolescent sexual abuse is associated with particular psychiatric disorders. Adult psychiatric outcomes that are frequently reported and associated with sexual abuse include borderline personality disorder, eating disorders, obsessive-compulsive disorder, substance use disorders, anxiety, depression, posttraumatic stress disorder, phobias, sexual disorders, multiple personality disorder, panic disorder, and somatization disorder. Suicidal ideation and attempted suicide are also very common among victims of childhood sexual abuse [1–6, 8, 10, 11].

A number of core psychopathological features appear to be shared by the different psychiatric disorders to which victims of abuse appear to be most susceptible to. Disturbances in sense of self, are involved in the majority of these disorders ranging from the identity diffusion of borderline personality disorder to the fragmentation of self fundamental to multiple personality disorder. Profound distortions in body image can occur in the eating, dissociative, and somatoform disorders. All of these disorders show evidence of high rates of self-injurious behavior including self mutilation, suicide attempts, and risk taking which constitute a sign of

fundamental problems with self-esteem, internal conflicts, and estrangement from self [2, 9]. Sexual abuse therefore appears to disrupt the progression of self-identity formation.

The pubertal period contains multiple developmental tasks. Adolescents must establish a new and positive sense of self; choose an adult role; develop the capacity for intimacy and achieve mature sexual expression; establish strong intimate interpersonal relationships particularly with peers; initiate the process of developing autonomy, and crystallize their personal value systems [13]. Even though sexual abuse significantly compromises the adolescent's ability to accomplish each of these important tasks, the most commonly reported adult outcome of childhood sexual abuse is a severe disturbance in the individual's sense of self [5, 6, 9]. Several studies indicate that the intrinsic helplessness and powerlessness associated with child sexual abuse may result in a diminishment of the child's developing sense of his or her competencies, locus of control, and efficacy, and in severe difficulty defining and integrating different aspects of the self [1, 12, 13]. The effects of this inability to acquire a coherent sense of self appear to be long-term.

Data on the relationship of abuser to victim indicate that predominantly in the case of abuse by a family member, the victim's sense of trust is violated [1]. Close relatives, who would, under normal circumstances, serve as objects for identification and introjection come to be viewed by the abused child as punitive, rejecting, dangerous, and deceitful. In addition, children may integrate elements of their abuse into basic beliefs that subsequently function as a universal model of self, others, and the world [4, 6–8]. The individual may have conflicting thoughts and feelings about the self. Self-identification as a “victim” may result in low self-esteem and create a pattern of self-destructive behavior [6]. These core relational schemas seem to hinder the individual's later ability to create and maintain meaningful interpersonal attachments [4, 8, 9]. Relational disturbance generally comprises conflictual or chaotic relationships, problems with forming intimate adult relationships, and behaviors that are likely to disrupt close relations with others [8].

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Self Management

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Synonyms

Self-monitoring; Self-regulation

Definition

Self-management is an intervention technique used to help students manage the accuracy and amount of work completed in a given time frame using a checklist or form [9]. This technique is also helpful in establishing increased levels of autonomy for career, personal, and extra-curricular activities [4].

Description

In many classrooms, behaviors such as inattention or disruption may prevent students from actively engaging in academic activities or on-task behaviors [2]. The amount

of time a student spends actively thinking about or working on academic content [2] is determined by various internal and external factors such as Traumatic Brain Injury (TBI), Post Traumatic Stress Disorder (PTSD), Emotional Disturbance (ED), poor executive functioning, depression, temperament, adjustment issues, etc.

Students who have trouble focusing, are off-task, or engage in problem behavior can improve their academic achievement using self-management [9]. Individuals with disorders (e.g., ADHD or Autism) requiring behavior modification can benefit from self-monitoring as well [4].

Some of the steps of a self-management intervention include: (1) Identify the purpose or benefits of the student discontinuing their off-task/problem behavior; (2) ask the student to help with the self-management plan along with ideas for rewards or incentives (the rewards need to be powerful and occur frequently to sustain self-management behaviors); (3) create a user friendly self-management form that does not require much work for anyone involved

Get class notebook out.

____ Yes ____ No

Get out pencil and copy off the board.

____ Yes ____ No

Write down class or homework assignment.

____ Yes ____ No

Look at teacher when she is talking and raise hand to answer.

____ Yes ____ No

Self Management. Fig. 1 Sample self-management form 1.

Get out paper for classroom assignment.

____ ☺
____ ☹

Raise my hand at least 2 times to answer questions.

____ ☺
____ ☹

Stay in my seat for 10 minutes

____ ☺
____ ☹

Work on assignment for 20 minutes without talking.

____ ☺
____ ☹

Self Management. Fig. 2 Sample self-management form 2.

(see Figs. 1 and 2); (4) demonstrate, model, or train how the self-management form or recording device will be used; (5) provide a small amount of time (e.g., 5–15 min) to check for understanding in relation to the self-management form and plan; (6) examine progress with the student and slowly lessen involvement with a goal of having the student function without an outside reinforcement system.

Relevance to Childhood Development

One major objective in education is to cultivate self-sufficiency and autonomy for childhood, adolescence, and life. Self-management has extensive utility for children and adolescents with or without disorders and can be modified to help multiple types of learners. Research also suggests that self-monitoring is a useful practice that assists in developing proper social skills. This technique can help decrease or extinguish behaviors that lead to negative labels (e.g., lazy, trouble maker, etc.), which lead to self-fulfilling prophecies manifested in the classroom. Furthermore, self-monitoring can build an increased sense of control over one's actions.

Research studies show that self-management techniques can improve academic achievement, improve on-task behavior, and decrease problem behavior. Additionally, self-management requires the student to review their own behavior and determine if they are succeeding or are in need of improvement [10].

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Self-Actualization

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Synonyms

Self-fulfillment

Definition

Self-actualization is the tendency to actualize and the desire for self-fulfillment. This includes the desire to reach full potential and become what one is capable of becoming.

Description

The term self-actualization was first introduced into the psychology field by Kurt Goldstein, an organismic theorist, but was popularized and expanded on by Abraham Maslow who included the concept in his well-known developmental theory: Maslow's Hierarchy of Needs.

Maslow's Hierarchy of Needs consists of five tiers often depicted in pyramid form with the most basic needs at the bottom. The hierarchy begins with the Physiological needs, which include food, water, breathing, sex, and sleep. The second tier includes needs related to Safety and security such as physical health, resources such as money, nurturance, and shelter. The third tier represents the need for Love and Belonging by family, friends, and intimate partners. Esteem makes up the fourth tier and includes self-esteem, confidence, need for achievement and recognition, and respect for self and others. The fifth and final tier is the need for Self-actualization, the realization of one's full potential and the desire to reach that potential. In addition to the five levels of the hierarchy, Maslow discussed the importance of cognitive and

aesthetic needs in facilitating the journey towards self-actualization.

This hierarchical system was established to capture the dynamic, interrelated events and behaviors that make up the developmental process. Maslow proposed this prepotency hierarchy where human behavior is dominated by the lower, more basic needs. Achievement of or interest in a higher need usually requires the fulfillment of a lesser need. For example, if one is hungry or lonely their energy and cognitive resources will be spent meeting those needs and not attempting to conceptualize and understand their full potential as an individual.

Characteristics of self-actualization include living in the present moment, being spontaneous and creative, trusting oneself and one's decisions without fear of regret, and being open to all possibilities. Achieving these characteristics requires that an individual has sufficiently met all other needs in the hierarchy.

Successful matriculation through the previous four tiers does not always result in self-actualization. Self-actualization is a process that can only begin when all other needs are met; this process may never be completed during a lifetime.

Relevance to Childhood Development

Maslow's Hierarchy of Needs, including self-actualization, can be incorporated into many of the other well-known theories of human development in that most theories include the attainment or development of certain behavioral and emotional characteristics. Maslow's hierarchy, like many of the developmental stage theories, is a progression; a child must accomplish goal A before goal B can be addressed.

During infancy and early childhood, individuals rely on others for fulfillment of their basic needs including food, water, safety, love, and eventually esteem. Many environmental factors can influence whether or not children's needs are met including socioeconomic status, parental/guardian resources, and quality of education. It isn't until adolescence or early adulthood that individuals move toward becoming solely responsible for fulfillment of their needs. An individual's ability to fulfill their own needs in adulthood often depends on how successfully their caregivers fulfilled their needs as a child. If, and only if, all environmental factors provide for a healthy development will an individual have the potential to reach the level of self-actualization in adulthood.

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Self-Annihilation

► Suicide

Self-Care

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Synonyms

Adaptive behavior; Resiliency; Self-treatment; Stress management; Stress reduction

Definition

Self-care includes the decision and actions used with the intention of enhancing a healthy lifestyle. Among helping professionals it is a tool to avoid compassion fatigue and professional burnout [1, 3, 4].

Description

Self-care is essential to prevent burnout, stress, and compassion fatigue particularly among members of the helping professions. Exercising, meditation, Tai Chi, reading, listening to music, and eating balanced meals are examples of self-care. Any form of self-care is more effective when an individual is able to maintain a healthy perspective [2, 5]. When a mental health professional's psychological and/or physical health affects their work, their ability to help their clients begins to be compromised thus creating a possible ethical problem.

Therapists, crisis responders, medical professionals, police and firefighters, animal shelter workers, and veterinarians are but a few examples of people who experience loss and trauma that results in serial grieving. Critical Incident Briefing was implemented to facilitate some immediate release of emotions for these individuals. This response became increasingly important after the Oklahoma City bombing when a year later the suicide rate

among the emergency responders was much larger than expected. In 2001 during the aftermath of the terrorist attacks, critical incident debriefers were on site to assist professionals during their breaks. Health care professionals spend many years studying to prepare themselves to be well trained. Self-care should be equally emphasized and not seen as self-indulgence.

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Self-Care Behaviors

► Activities of Daily Living

Self-Care Development

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Synonyms

A personal skill of caring for oneself; Thoughtful attendance to oneself

Definition

Self-care development involves the progressive expansion of skills related to caring for oneself that are refined by experience, direct instruction and maturity. Self-care includes the ability to improve, restore and maintain one's own personal health and psychological wellness [2].

Description

Self-care involves any activity of caring for personal needs. These needs may be addressed physically such as eating or exercising to maintain a healthy body or psychologically

such as moving away from potentially dangerous situations or emotions. Self-care strategy development has also been linked to self-sufficiency and self-management. Developmental milestones in evaluating normal child growth often consider personal self-management and care for self.

Self-care developmental techniques involve identifying explicit and implicit patterns of need and developing appropriate and socially acceptable strategies to respond and contribute to productive and functional personal growth and development. As the child grows and learns to meet personal needs, self-care can be observed in self-initiated behaviors. For example, the child moves from “falling asleep” to sleeping for rest for energy to play or to learn. Self-care might also be observed in verbal communications. With increasing skill and accomplishment, self-managed and self-determined goals related to self care are accomplished. As cognitive capacity and socialization develops so too does self-care. Self-care development is facilitated by creating an environment conducive to learning: teaching the child to listen to self, to identify internal and external needs, and to manage personal care will assist with development [3].

Self-Care Techniques

Developmentally, self-care techniques will change with maturity, skill and experience. For example, an infant cries as a technique for self care. By school age, telling the teacher about a bully may offer a more appropriate strategy and by adolescence, using self-reflective questions to identify triggers that create stressors may provide a foundation from which future self-care techniques develop.

Self-care techniques involve the development of self-managed, activity processing resources implemented in response to needs and desires. Building strong support systems and developing internal resources are important to maintaining a healthy lifestyle.

Relevance to Childhood Development

Self-care in children is an important part of individual development. It can be related to sense of identity, self confidence, independence and impacts social relationships both within and outside the family. Some self-care activities include: grooming, personal hygiene, physical activity, eating properly, and maintaining safety. These factors are beneficial to development; they involve the child in self-regulating a better quality of life. The family plays a critical role in the development of these self-care strategies. Family members teach children self-care through direct instruction and modeling and the child often learns these skills through trial and error and gradual

approximations. Poor self-care choices often lead to greater behavioral problems that may impact daily lives and school. Poor self-care strategies can affect health as well as relationships with families or peers [1].

Importance of Parent-Teacher Relationships

Early childhood programs that promote communication between parents, children and teachers can help to build a strong working relationship in support of self-care. This communication can help early childhood professionals to better understand the parent’s perception and to help them as they developmentally teach self-care techniques to their children.

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Self-Choice

►Autonomy

Self-Concept

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Synonyms

Self; Self-esteem; Self-image; Self-representation; Sense of oneself; Sense of self

Definition

An organized set of perceptions, cognitions, or evaluations that one holds about their abilities and characteristics.

Description

Social interactions, experiences, and the interpretation of those interactions and experiences that an individual has with their environment mold the self-concept. The perceptions that an individual holds about themselves and/or

abilities are influenced especially by reinforcements from those close around them such as parents, friends, other significant role models, and the attributions that individual gives for their own behaviors [1, 2]. Two distinct aspects of the self-concept that are interrelated in experiences include self-esteem and identity [3]. Self-esteem seeks out opportunities to enhance the evaluations one holds about themselves whereas identity gives structure (to the self-concept) and stabilizes the self in social systems. The self-concept is seen as multifaceted and hierarchical because the perception an individual holds about themselves encompasses various areas of life including social life (e.g., family, friends, religion) academic (e.g., school) and nonacademic activities (e.g., work, hobbies) [2]. In many scientific references, self-concept has been linked to individual achievement and correlations between it and other constructs examined [4]. Research suggests that it is possible for an individual to hold a positive self-concept in one area of life and a negative self-concept in another separate area. The evaluation an individual holds about themselves is not static and may change over time and across situations. Most changes to an individual's previous evaluation of themselves result from taking on new roles and/or life transitions [5]. Research has found that evaluations generally become more favorable over the lifespan, evaluations are represented by a moving baseline that is determined by situational factors, and that environmental stability plays a key factor in evaluation stability [5]. Research has also described the self-concept as the "working" or "assessable" self-concept due to its continually active state and the shifting amount of assessable self-knowledge available to the individual at a certain point in time [6]. The "working" self-concept lends support to the changing nature of the individual's self-evaluations across time and situations.

Relevance to Childhood Development

Self-concept begins to develop in children after becoming aware of themselves as distinct physical entities. Once the child recognizes their distinctness as a representation of the self, evaluations of the self are able to follow and can be seen in children as early as 18 months of age [7]. Behaviors that indicate a child has developed a concept of themselves include using self-referential terms (e.g., using their name or pronouns), use of evaluative words (e.g., dirty, bad, good), and references to competencies (such as saying "I can't" do something). During middle to late childhood (e.g., early elementary school years), self-concept is greatly shaped by self-perceived academic competence, social acceptance, and sports competence [8]. It is important during this time that children have positive feedback

from parents, friends, and significant role models so they will not rely too heavily on their own self-perceived competency for evaluations, which could result in a lower self-concept. Research suggests children in middle to late childhood seek to maintain a positive self-image by utilizing overestimation, selective social comparison, and strategic association with others [8]. As the child continues to grow, life transitions and new roles taken will continue to shape and influence their self-perceived competencies and self-evaluations.

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Self-Consequating

► Self-Reinforcement

Self-Control

- Academic Delay of Gratification
- Impulse Control
- Inhibition
- Self-Regulation
- Temporal Discounting

Self-Destruction

► Suicide

Self-Determination

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Synonyms

Autonomy; Psychological freedom; Volition

Definition

Self-determination theory focuses on the extent to which individuals' behavior is self-determined versus controlled. When acting in a self-determined fashion, people experience a sense of freedom, choice, and volition during their activity engagement.

Description

Key studies on self-determination have been conducted by Edward Deci and Richard Ryan [1, 4, 5]. Within the self-determination theory, it is argued that the satisfaction of the basic psychological needs for competence, autonomy, and relatedness will energize individuals' autonomous engagement in an activity. Within self-determination theory, the concept of autonomy is contrasted with heteronomy and is differentiated from the concepts of independence versus dependence:

Autonomy versus heteronomy: When being self-determined one is acting in an autonomous or volitional way because the activity spontaneously emanates from one's emerging interests or is congruent with one's abiding values. Acting in a self-determined fashion means that one endorses one's action at the highest level of reflection such that one fully stands behind one's activity. The opposite of autonomy or self-determination is heteronomy, that is, feeling controlled to partake in the activity, either because external forces or intra-individual demands are pushing one to engage in the activity [5, 6].

Independence versus dependence: Self-determination or autonomy needs to be differentiated from the concept of independence. Independence refers to being self-reliant and making decisions without the interference of others. Independence is contrasted with dependency which implies relying on others for advice or help. One can act independently or remain dependent on others for both autonomous (self-determined) or heteronomous (non-self-determined) reasons. Thus, people may volitionally choose to act independently (i.e., autonomous independence) or people may feel pressured to act independently, for instance, out of rebellion against controlling

authorities (i.e., heteronomous independence). Conversely, people may volitionally turn to others for advice (i.e., autonomous dependence) or people may feel pressured to rely on others (i.e., heteronomous dependence) [7, 8].

Relevance to Childhood Development

From the perspective of separation-individuation theory, development towards independence implies that adolescents increasingly take responsibility for themselves without strongly depending or relying on their parents. This development would be particularly salient during adolescence and would contribute to maturity and psychosocial adjustment primarily during adolescence. In contrast, autonomy or volitional functioning as defined in self-determination theory is thought to be essential to optimal human development across the lifespan. Research has shown the importance of interpersonal support of autonomy for individuals' adjustment from early childhood to late adulthood [2].

Within self-determination theory, an autonomous versus controlled functioning is said to result from being exposed to an autonomy-supportive versus controlling environment. The provision of choice by parents and teachers represents one key ingredient of an autonomy-supportive environment that will promote autonomous functioning. In line with this, several studies have convincingly demonstrated that choice provision does increase one's interest and subsequent persistence at the activity at hand. However, children cannot be provided with unlimited freedom to fully choose their own course of action as parents, teachers and other socializing agents will introduce various norms, rules and regulations over which children have little or no choice. Although choice is constrained in these situations, children can still volitionally stick to these rules or freely adopt the norms that are transmitted to them. The volitional acceptance of these norms and rules will be facilitated when parents and teachers at home or in classroom settings succeed in presenting rules and instructions in an informal fashion rather than in a controlling manner [3]. This will be the case when the presented rules and instructions are sufficiently explained (rationale provision) and when socializing agents empathically solicit children's opinion when these rules and norms are introduced. When teachers and parents are controlling, however, they tend to use controlling reward systems or severe punishments; they will rely on evaluative systems, make use of strict deadlines and will use controlling language ('should'; 'expect') as to ensure compliance. However, such controlling environments do yield a substantial cost as indexed by reduced

interest in the activity at hand, lowered creativity and decreased well-being. Thus, from the self-determination perspective, it is fundamental to create an autonomy-supportive (i.e., volition promoting) environment if one is to facilitate children's well-being and growth.

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Self-Directed Learning

► Self-Regulation

Self-Discipline

► Self-Regulation

Self-Efficacy

Definition

Self-efficacy refers to the beliefs that individuals have about their capabilities to complete a particular task successfully.

Description

Bandura, acknowledged as one of the principal initiators of self-efficacy theory, suggested that one's perceived self-efficacy has a powerful influence over one's choice of an activity, the kind of effort one expends, and how much one is able to maintain that effort in the face of difficulty. Consequently, self-efficacy beliefs have been proposed to influence children's motivation.

Schunk suggested that there are four leading sources for how children develop their self-efficacy level for a given achievement. These four sources are: past performance accomplishments, vicarious experiences, forms of persuasion, and physiological indexes. Schunk explained that learners who have had positive past experiences with a learning task tend to develop higher self-efficacy levels than those with negative experiences. As learners observe successful performances of peers, they also develop high self-efficacy levels. Learners who have been convinced by an authoritative figure that they are capable tend to see themselves as capable too, thus developing high self-efficacy. Lastly, learners who tend to have low anxiety symptoms when performing a task, as would be indicated by changes in heart rate, will likely interpret the situation as one for which they have high self-efficacy.

In general, success raises efficacy and failure lowers it. Lowered efficacy can affect children's motivation negatively, although once a child develops a strong sense of efficacy, one or two occasions of failure will not have much effect. Self-efficacy is not a personality trait or part of one's character, and there is no such thing as a "self-efficacious" person. Rather, self-efficacy is an appraisal that one makes and a belief that one has about his or her competence to succeed at a particular task, similar to one's confidence level, although confidence is more global. Self-efficacy is situation specific, a context-specific assessment of competence to perform a *specific task*.

Relevance to Childhood Development

Children tend to behave in ways that are consistent with their perceptions about themselves. Those who have positive beliefs about themselves tend to put in more effort, persist in the task, use effective strategies, and are therefore more successful in school. Young children often develop self-efficacy based on their own improvement over time while older children tend to evaluate themselves based on how they compare to their peers.

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Self-Esteem

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Synonyms

Self-concept; Self-image; Self-worth

Definition

Self-esteem is defined as a person's evaluation of their own self-worth.

Description

Self-esteem is how positively or negatively a person views their worth. People who have a favorable global evaluation of themselves are said to have high self-esteem, while people who have an unfavorable global evaluation of themselves are said to have low self-esteem. High self-esteem has been shown to have a strong relationship with life satisfaction [1] and with happiness [2]. Studies have also demonstrated a correlation between self-esteem and other attitudes and behaviors, such as school performance, but it is important to note these correlations are not always strong and that these correlations do not mean causality. While it is possible a person with high self-esteem will get good grades, it is also possible that a person will get good grades and then view themselves more positively and thereby increase their self-esteem [3].

One of the most common methods of measuring self-esteem is a self-report measure called the Rosenberg Self-Esteem Scale [4]. The scale consists of ten questions with the choices of Strongly Agree, Agree, Disagree, and Strongly Disagree. As with other self-report measures, it is impossible to know for certain if the respondent truly believes in their replies or if their replies are an attempt to appear socially desirable. Also, one of the issues with using a self-report measure for self-esteem is

that the answers rely on the respondent's perception and not necessarily on reality. For example, people with high self-esteem may claim to be more attractive and intelligent than the average person, but their peer ratings of their attractiveness and their IQ scores might not differ from the average person [5]. People with high self-esteem also claim to be more popular and socially adept, but when judged by their peers, they again appear to be average [3].

While there are benefits to high self-esteem, such as happiness and life satisfaction, there are also potential drawbacks such as aggression and prejudice. Low-self esteem was once theorized to be the cause of violent and aggressive behavior, but recent theories postulate the opposite. When people with overinflated judgments of their self-worth are threatened, they are more likely to become aggressive [6]. Evidence has also shown people are more likely to become more prejudiced when their self-esteem is threatened. Individuals who had an experimental threat to self-esteem were able to restore their self-esteem by derogating out-group members [7].

While self-esteem can be related to self-concept and self-efficacy, they are not exactly the same. Self-concept is defined as our knowledge of who we are and can include our physical characteristics, our psychological states, and our considerations of how other people may judge us. Self-efficacy is defined as the belief in one's ability to carry out specific actions that produce desired outcomes in a particular domain [8].

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Self-Evaluation in Academic Settings

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Synonyms

Self-reflection; Self-regulation; Strategic thinking

Definition

Self-evaluation is a key regulatory process through which an individual compares self-generated or externally-provided performance information to personal standards or goals [1, 2].

Description

Self-Evaluation Within a Self-Regulation Framework

Several theoretical models of self-regulated and strategic learning have been developed over the past few decades to enumerate the basic mechanisms and processes through which students exert control over their learning, skill development, and pursuit of personal academic goals [3]. From a social-cognitive perspective, self-regulated functioning involves self-generated thoughts, feelings, and behaviors that are planned and cyclically adapted based on performance feedback in order to attain self-set goals. Zimmerman proposed one such cyclical model that depicts self-regulation in terms of three sequential phases: forethought (i.e., processes that precede efforts to learn or perform; goal setting and strategic planning), performance control (i.e., processes occurring during learning efforts; self-monitoring and self-control), and self-reflection (i.e., processes occurring after learning or performance; self-judgments and self-reactions) [1]. These phases are hypothesized to be interdependent so that changes in forethought processes will induce changes during the performance phase which will, in turn, influence self-reflection processes. A self-regulatory cycle is completed when self-evaluation processes influence forethought beliefs and behaviors during future learning efforts.

The act of self-reflection is a multi-faceted decision-making component of the cyclical loop whereby individuals engage in various types of self-judgments (i.e., self-evaluation, causal attributions) and evaluative reactions (i.e., satisfaction, adaptive inferences). Each of

these reflective processes have been shown to be significant predictors of student achievement and motivational beliefs [4–6]. For example, individuals who attribute success and/or failure to controllable factors, such as strategy use and effort, and who exhibit positive adaptive inferences, such as modifying strategies following failure, will typically demonstrate enhanced levels of achievement and more positive perceptions of efficacy, task interest, and satisfaction [4, 6]. In other words, when individuals engage in self-reflection phase processes and focus on their use of strategies or other personal processes, students are more likely to sustain high levels of motivation and strategic planning.

However, before students immerse themselves into attribution and adaptive inference reflections, they must first self-evaluate how their current academic performance compares to a personal or objective standard. Ultimately, identifying a performance outcome as successful or unsuccessful sets the stage for further self-reflective thought and action. The goal of this brief entry is to illustrate the process of self-evaluation, with particular emphasis placed on the nature and type of evaluative standards used to judge performance outcomes. Research has shown that the type of standards one uses to evaluate a performance has important achievement, regulatory, and motivation implications [4, 5]. Examples of applied self-regulation intervention programs that emphasize self-evaluation will also be presented.

Nature of Self-Evaluative Standards

In order to self-evaluate performance and skill development, students need to employ a standard or benchmark as a point of comparison. These standards take many forms and can vary across source, type, and level of difficulty.

Sources of evaluative standards. Evaluative standards can be generated by external sources, such as parents, teachers, and curriculum developers, or by an individual student. In terms of external sources, parents who pressure their children to attain a minimum grade of B in all classes or a teacher who sets a standard of 90% homework completion for receiving bonus points are typical examples of how external standards might be imposed on students. Another external source, which tends to be more objectively and systematically-derived, involves curriculum benchmarks and/or basic academic skill levels. For example, researchers have established early literacy benchmarks for students in kindergarten that are typically used to determine the intensity and level of intervention services that students need to improve their reading skills [7].

All forms of externally-initiated standards are important in self-regulation models because they provide a benchmark against which students can judge the effectiveness or acceptability of their test grades or other performance indicators.

From an autonomy-supporting or self-regulatory perspective, however, one must be cognizant that external standards may or may not be used by students when evaluating their school-based performance if they do not accept these standards as relevant or important to their academic success. Motivation researchers have shown that when students are afforded the opportunity to develop their own goals or self-standards they will often become more interested and engaged in academic activities [8]. As a practical example, a 14-year old aspiring writer will not automatically use readily available external evaluative criteria, such as English course grade, as the basis for judging her writing skills if she does not believe or accept this grade to reflect her writing potential. In contrast, she may place greater emphasis and value on her normative performance (i.e., a top-three placement) in creative writing competitions. In this situation, the student will probably not become overly concerned about a grade of B in her English class, yet will experience significant emotional and motivation turmoil if she does not perform well in the writing competitions. In short, although evaluative standards can be self-generated or provided through external sources, they will be used most frequently and have the greatest impact on student behavior and motivation when they are personally meaningful or relevant to that student.

Types of self-evaluative criteria. Students can use different *types* of evaluative criteria to judge their competency and skills. Three common types of evaluative standards include: (a) mastery, (b) previous performance, and (c) normative [1]. These different criteria are important to consider because they can play an influential role on the conclusions and interpretations one generates about performance and personal competency. Mastery criteria typically involve using markers or benchmarks that represent core sets of skills ranging from novice to expert. Schools often use mastery criteria in their curriculum materials as well as part of the Individual Education Program (IEP) utilized within Special Education circles. This type of criterion is important because it focuses students' attention on key indices of skill development or progress towards an important academic outcome. The second type of criteria, called prior performance or self-criteria, is a standard that is used to directly assess growth by comparing prior outcomes of an individual to his or her current performance outcomes. Both mastery

and self-criteria are emphasized in applied self-regulation intervention programs because they naturally direct students' attention and reflective thoughts on their own behaviors and outcomes, a necessary condition for nurturing the development of self-directed or regulated learners [9].

Normative comparisons are a third type of criteria that are commonly observed in school environments, particularly in settings which emphasize, either directly or indirectly, public displays of student performance. In short, students employing this type of standard evaluate their skills and performance relative to their peer group. Social comparisons can yield impressive motivational benefits for students, particularly for those who are high achievers, because they imply that students are more competent or capable than others. Unfortunately, when students struggle in school *and* rely on normative comparisons to judge their capabilities, there is a high probability that their sense of efficacy and competence and resulting motivation will be adversely affected [1]. Of greatest importance, however, is that reliance on normative standards shifts students' attention from personal progress and growth to factors that are largely unpredictable and out of their control. When academically at-risk students begin to focus much of their energy and attention on how their peers perform they can often lose sight of or fail to recognize actual progress that they are making; such as when a student improves her math test grades from a 69% to a 79% yet focuses only on the class average score 88%. If this student does not learn to monitor and evaluate progress based on self-criteria, she will probably not see the ten-point improvement in a positive fashion and may begin to exhibit adverse negative emotional and regulatory reactions, such as feelings of anxiety and incompetence.

Level of difficulty. The difficulty level of the standards that students use to judge their performance outcomes can also play an important role in cultivating adaptive or dysfunctional self-evaluations. Suppose a seventh-grade student, Natasha, earned science test grades between 65% and 72% over a 2 month period. In the hopes of increasing her performance, Natasha decided to establish a difficult and challenging goal of 95% for her science tests. On her next two tests she received scores of 77% and 79%, respectively. One of her classmates, Tony, earned identical science test grades but developed a more modest yet challenging science test grade standard of 83%. Despite exhibiting identical science test scores, it is highly probable that Natasha and Tony will evaluate their performances in qualitatively distinctive ways. For example, because Natasha's test performance fell far below her self-standard or goal she is at-risk for developing feelings of

dissatisfaction, anxiety, and low self-efficacy. In contrast, Tony is much more likely to interpret his grades of 77% and 79% as successes because he is increasingly getting closer to his standard of success. Similar to normative comparisons, when students develop and/or use personal standards that are overly difficult or challenging, they will have much greater difficulty recognizing personal progress, even when adequate or some growth is being made [8]. Setting short-term and moderately challenging standards is important from a regulatory viewpoint because such standards provide students with multiple opportunities to evaluate and reflect on their personal mastery of key academic skills or tasks.

Application of Academic Self-Evaluation Interventions Across Grade Levels

Over the past couple of decades, the number of school-based self-regulation intervention programs has steadily increased [10–14]. Regardless of the variations in the theoretical foundations or developmental focus, these programs place primary importance on teaching students to self-evaluate using mastery- or self-criteria. As indicated previously, the use of these types of standards or self-evaluative criteria promotes adaptive self-regulation because students are continuously prompted to focus on their own behaviors and performances rather than on external or uncontrollable factors.

Butler's Strategic Content Learning (SCL) program has been successfully applied in middle school, high school, and college settings. A basic assumption of this approach is that students are *active interpreters* of task demands, their own knowledge and skills, and their development of these skills in relation to self-generated goals and standards [11, 12]. The SCL adheres to a largely constructivist paradigm whereby tutors are primarily responsible for facilitating or helping students generate their own strategies for solving academic-related activities.

Another school-based intervention, called the Self-Regulation Empowerment Program (SREP), evolved from social-cognitive foundations and has been implemented with secondary school youth. This intervention involves teaching students to engage in the three-phase cycle of self-regulation, but places particular importance on teaching students how to adaptively reflect on personal progress [10, 15]. In one study, ninth-grade students who were failing or near failing in biology participated in approximately 22 sessions of SREP over a period of 2.5 months [15]. A key part of this program was the use of a Self-Regulation Graph as the primary vehicle to link all three cyclical phases. In this graphing procedure, students were taught to plot test grade standards or goals, to self-record

their strategies, and then to plot their actual test grades. The use of this graph enabled students to use self-criteria (i.e., difference between their test grade standards and actual test grades) to evaluate the adequacy of their math test scores and to also link these self-evaluative judgments to their use of specific learning strategies.

Emphasizing self-evaluation and other self-regulation principles in school-based settings is not only appropriate in middle school, high school, and college settings but also in the primary grades [13, 14]. Graham, Harris and colleagues have conducted extensive research on the effectiveness of the Self-Regulated Strategy Development (SRSD) program for over 20 years [13]. Much of this research has focused on children in the primary grades with writing skill deficits. As part of this program, students are taught strategies to improve their writing performance but are also instructed to self-record and graph writing outcomes and then to compare these scores to a goal or set criterion. An interesting component of SRSD instruction is that students are not only taught to evaluate their behaviors and performance from a summative perspective, but also are often instructed to evaluate their engagement and execution of the writing process. This focus on self-evaluation is particularly useful in promoting adaptive regulatory behaviors because it directs students' attention on the essential processes that are needed to successfully perform an academic task. Research has shown that when novices or inexperienced learners focus on outcomes before they master the requisite strategies or skills for a task, they will often not attain a high level of performance and may actually demonstrate lower motivational levels [6].

Researchers examining the effectiveness of math-based self-regulation interventions in the primary grades have also supported the basic premise that self-evaluative standards based on self-criteria are effective in promoting adaptive regulation and achievement [14]. Fuchs and colleagues conducted a study with third-grade students to examine the contribution of self-evaluation and goal-setting to students' math problem-solving skills. In this study students were instructed to chart their daily scores on a math worksheet and then evaluate whether their scores beat prior performances. Similar to other intervention programs, the process of comparing one's own performance outcomes over time is important because it directs students' attention on their own behaviors and performance attainments, limiting the attention they devote to irrelevant or distracting factors that will not improve their performance.

In sum, the use of self-evaluative standards is a critical component of the cyclical model of self-regulation

because it helps to operationally define whether students' skills and performance outcomes are adaptive. However, the mere act of self-evaluating is not enough to promote adaptive self-regulatory thought and action. It is also important to help students select personally-meaningful or valuable evaluative standards that naturally direct their attention on the essential task components which they are expected to perform. It is when students focus on the adequacy of their own skills and regulatory strategies that they can most effectively initiate modifications and adaptations to optimize their successes.

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Self-Fulfilling Prophecy

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Synonyms

Expectancy effect; Pygmalion effect

Definition

The self-fulfilling prophecy holds that what a person believes about him/herself (or what others believe about them) will influence their performance. The self-fulfilling prophecy can act positively or negatively, depending on whether expectations are positive or negative.

Description

In educational contexts, the self-fulfilling prophecy is often used to explain differences in performance among students, such that a high-performing student might be responding to high expectations from others (e.g., teachers, parents, classmates) while a low-performing student might be responding to low expectations. [2] illustrated the self-fulfilling prophecy through an experiment in which elementary school teachers treated students differently based on their initial positive expectations of those students, and over the course of the school year, students performed in ways that were consistent with teachers' positive expectations. Subsequent research suggests that the effect can be positive or negative depending on whether teachers' expectations are positive or negative. Thus, if teachers have positive expectations for a student, they are more likely to ask that student more difficult questions, smile and establish eye contact more often, and call on them more often in class, thereby gradually leading to better performance from the student. On the other hand, if a teacher has negative expectations for a student, the teacher is likely to

behave more critically or negatively, thereby creating a less rewarding environment for the student. In both situations, the student responds to cues from the teacher which leads to performance that is consistent with the teacher's expectations.

If parents and teachers understand how positive and negative expectations can change behavior, they can use this phenomenon to influence the child to behave in ways that are consistent with expectations. Expectations may be based on numerous characteristics, such as students' gender, ethnicity, socioeconomic status, language, appearance, and test scores.

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Self-Fulfillment

► Self-Actualization

Self-Harm

► Self-Injurious Behavior

Self-Help Skills

► Adaptive Behavior

Self-Image

- Self-Concept
- Self-Esteem

Self-Inflicted Violence

► Self-Injurious Behavior

Self-Injurious Behavior

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Synonyms

Cutting; Non-suicidal self-injury (NSSI); Self-harm; Self-inflicted violence; Self-mutilation

Definition

Self-injurious behavior (SIB) includes self-inflicted harm to the body, with or without tissue damage, without the intent to die.

Description

SIBs are usually employed to reduce anxiety and tension in the mind and body and to relieve emotional pain [4]. They may also be used to punish the self and to express anger and emotions that cannot be put into words. There is some evidence that those who employ SIB do so in an attempt to feel "real" and avoid dissociation or emotional detachment [3]. Cutting and burning are the most common forms but other behaviors, ranging from hair-pulling to bone-breaking may also be classified as forms of SIB. Self-hitting and head banging are usually associated with children with autism or developmental disabilities. Piercing and tattooing are not considered SIB since they are usually associated with bodily decoration. Variables contributing to the development and reliance on SIBs are complex and may include a host of life experiences such as abuse, neglect, loss, violence and the inability to recognize, express or handle emotions [5]. Although not sex specific, there is some evidence that females in their teens are at the greatest risk of developing and relying on these behaviors [2].

At present, SIB does not have a formal diagnostic category in the DSM-IV-TR [1]. SIBs have been diagnostically linked to Borderline Personality Disorder (BPD), but this assumption has been challenged by recent prevalence studies. It has also been theorized that endorphins, the natural painkillers in the body which are released when someone self-injures, may play a role in

the addictive or repetitive nature of self-injury. Many myths surround SIBs, with the most common being that those who self-harm want to commit suicide. The behaviors often mean just the opposite and through SIB adolescents are able to relieve emotions that might lead to suicide. Serious risks may result from SIB including infection and unintentional fatal harm. Therefore, it is important that children who self-injure receive a thorough risk assessment. Cognitive-behavioral therapy (CBT), Dialectical Behavior Therapy (DBT) and psychotropic medications have all shown promise in treating these behaviors.

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Self-Judgment

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Definition

Self-judgment results from thoughts individuals have about themselves and the meanings attached to those thoughts. The thoughts, hence, produce related feelings such as anxiety, anger, and depression. Judgments (The process of forming an opinion, or reaching a conclusion based on the available material.) people make about themselves can become habituated as they are used to explain and validate unhelpful thoughts (e.g., If I am harsh on myself, other people will not be as harsh) and they might, accordingly, be intended to protect people against emotional pain, failure and rejection.

Description

Bandura (1993) introduced the notion of self-efficacy (An individual's sense of their abilities, of their capacity to deal with the particular sets of conditions that life puts before them.) [2]. He stated that individuals need other people to be with them, to listen to them and to pay attention to them. Furthermore, new challenges appear continuously as people grow older. As a result, people attempt to become more competent, engage in new behaviors and therefore make new judgments of their personal effectiveness. These judgments concerning personal effectiveness usually determine and influence how individuals might think, feel and behave. Moreover, people's judgments may affect their motivation and willingness when it comes to coping with challenging situations. On the one hand, the more able people perceive they are, the more likely they are to persist with a challenge. On the other hand, the less able people think they are, the less likely they are to cope with a difficulty.

Self-judgments compose one's self-esteem (The degree to which one values oneself.) after evaluating how one acts during times of perceived importance. One's understanding of a situation might distort healthy self-attitudes. That might happen because people commonly are much more judgmental and critical when it comes to themselves, whereas they are usually more understanding when it comes to other people, sometimes even strangers [4].

Neff (2003) discusses the notion of self-compassion (An emotionally positive self-attitude that should protect against the negative consequences of self-judgment.). It is argued that if people accept that failure is a part of human experience, they will subsequently become less self-judgmental. In addition, as one becomes less judgmental of oneself, then there is no need to compare to other people to enhance their self-esteem and they can therefore be less judgmental concerning other people [5].

Self-compassion requires self-forgiveness. It does not necessarily mean that failures must not be credited, nevertheless it means that individuals are not too harsh on themselves when they perceive a failure. A person that has self-compassion is not threatened during a failure, but challenges oneself and tries to improve. That is, a person feels safe to allow oneself to discover unhelpful thoughts, feelings and behaviors. People do not keep away or hold back distressing feelings in order to feel self-compassion. Self-compassion protects people from negative self-judgment [6, 7].

According to Neff (2003) self-compassion consists of three elements. The first one is "self-kindness," which means that one is being kind and understanding of

oneself. The second element is “common humanity,” which is identifying one’s experiences as parts of the larger human experience and not personal ones. Accepting that failure and inadequacy are common, in respect to other people, reduces personal blame and negative self-judgment. The third element is “mindfulness” which implies that people should not identify with unhelpful thoughts, but hold them in balanced awareness and help oneself accept situations as they occur [5].

Thus, individuals can allow themselves to become less self-judgmental, and deal with their thoughts and feelings as they are, without having their self-esteem affected. In order to accept the experience for what it is, one must be aware of their unhelpful thoughts. If individuals dwell on emotions connected to failure or inadequacy, they are more likely to judge themselves negatively. Neff (2003) supports that the less self-judgmental one is, the more balanced self-awareness one gains [5].

Distress can be reduced when individuals move away from negative thoughts and permit themselves to be aware of their thoughts without being self-judgmental. People who are trained to use mindfulness can focus their attention to the present and become aware of how their thoughts can guide them to behave in a certain way. Individuals, therefore, allow themselves to become less judgmental of themselves, because their focus is detached from the assessments they make concerning rejection and failure [1, 3].

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Self-Knowledge

► Self-Understanding

Self-Management

► Self-Regulation

Self-Monitoring

Synonyms

Self-management; Self-observation

Definition

As part of self-regulation, *self-monitoring* is the process of observing and recording one’s own behavior.

Description

To achieve a goal, one must observe, evaluate, and record the process and be aware of how well one is doing. Self-monitoring is critical to determine whether one is making progress at a task. Self-monitoring has been documented to increase students’ attention and the number of tasks they complete. Through self-monitoring, individuals can modify their behaviors so that inappropriate behaviors can be replaced with more appropriate ones. Typically, individuals who see that they are making progress towards their goals are more likely to sustain their efforts and can lead to a sense of accomplishment. Thus, self-monitoring can lead to increased motivation.

Researchers have offered a few suggestions for promoting self-monitoring:

1. Encourage children to create questions about the material they are learning, and then answering the questions they create
2. Demonstrate to children the process of evaluating their own performance
3. Delay feedback so that children can evaluate their own performance
4. Suggest specific criteria so that children can use them as a guide to evaluate their performance
5. Encourage independent learning over time

Relevance to Childhood Development

Young children often have difficulty monitoring their own behavior. However, as they mature cognitively and through guidance, children are more able to control and observe their actions. Children may not always be aware of how frequently or how well they do something. To help them focus on their behaviors, adults can ask them to observe and record their behaviors. Through this strategy, significant improvements in children's academic and social behaviors can be seen.

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Self-Motivation

► Self-Reinforcement

Self-Mutilation

► Self-Injurious Behavior

Self-Observation

► Self-Monitoring

Self-Percept

► Sense of Self

Self-Reflection

► Self-Evaluation in Academic Settings

Self-Regulated Learning

Definition

Self-regulated learning is the process of taking responsibility for and having awareness and control over one's own learning.

Description

Self-regulated learning describes learning that is guided by *strategic actions* (planning, self-monitoring, control, and evaluation). In particular, self-regulated learners set goals, reflect on past experiences, use strategies, monitor their progress, and are aware of their strengths and weaknesses. As a result of these actions, self-regulated learners tend to do well academically.

Examples of self-regulated learning would be scheduling ahead and organizing effectively to achieve desired goals. Periodically checking to see if progress is being made towards the goal is an example of self-monitoring, a crucial step in self-regulated learning. If progress is not being made, self-regulated learners will modify their plan accordingly to reach their goal. Control includes the ability to direct one's attention to the goal at hand and not letting outside distractions interfere in the learning process. Lastly, evaluation is simply assessing the outcome of one's efforts so that improvements can be made for future tasks.

Relevance to Childhood Development

In order help students develop self-regulation, there are a couple of strategies suggested by researchers:

1. Scaffold students' learning process and then gradually allow students to take responsibility over their own learning.
2. Emphasize the relationship between taking responsibility and academic achievement.
3. Encourage students to set their own goals and then monitor and evaluate their progress.
4. Frequently allow students to monitor their comprehension and evaluate their own performance.

Children often begin the learning process from watching others (also known as vicarious learning). When children are given a task to accomplish with a set goal from a parent or a teacher, they learn strategies to complete the goal. Over time, they are able to set their own learning goals.

In relation to the development of self-regulated learning, as children learn initial strategies to accomplish small tasks and goals, for example, completing their homework

on time, they will eventually set higher goals for themselves later on, such as completing college.

As children grow, they become increasingly competent in evaluating their own performance. Young children often seek adults' approval as a means of evaluation on how well they have done. Older children (middle school students) show an increase in self-awareness and self-evaluations become more frequent and accurate.

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Self-Regulation

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Synonyms

Academic delay of gratification; Active learning; Autonomy; Delay of gratification; Impulse control; Self-control; Self-directed learning; Self-discipline; Self-evaluation in academic settings; Self-management

Definition

Self-regulation of learning refers to the process in which learners self-initiate thoughts, behaviors, and feelings in order to pursue valuable academic goals.

Concept of Self-Regulation

During the last 3 decades, self-regulation of learning has emerged as an important area of research helpful to

explain academic success. The seminal work of Albert Bandura placed self-regulation of learning as a pivotal component of any major academic endeavor. For instance, self-regulation of learning has been studied in most major areas of human development and learning such as in school, college, and medical settings, sport and industrial organizational tasks, and in direct classroom instruction as well as on online instruction.

According to Bandura [1], individuals can influence and be in dominion of their environment in order to fulfill important goals. They can produce desired consequences and manage their behavior in a purposeful manner to secure objective attainment and realization. Likewise, Zimmerman [5] observed that students could engage in self-directive learning processes by using their social and cognitive resources in order to attain academic achievement. Zimmerman [5] proposed that learners have the capacity to engage in a cyclical self-regulated learning process in which they establish standards, set academic goals, regulate their beliefs and motivation, select learning strategies to be used, monitor their academic progress, and self-evaluate their progression toward goal completion. Further, Zimmerman [5] observed that in the face of obstacles, learners need to delay gratification [2].

Skilled self-regulated learners are those who generate extraordinary motivational beliefs in order to secure goal accomplishments. They are also those who when conflicts arise between pursuing important academic goals and alternative tempting options, learn how to remain task-focused despite immediate impulses to succumb to attractive temptations. On the other hand, less-skilled self-regulated learners are unable and often unwilling to generate appropriate self-efficacy beliefs, interest, task value, and outcome expectancies that could secure their successful attainment of predetermined academic goals. These differences between these two types of learners may be explained by learners' personal characteristics such as personal goals, vicarious experiences, history of reinforcement, and modeling, as well as environmental and social conditions that influence learning.

Self-regulated learners value learning and set suitable achievement goals. They plan and manage time effectively. They hold positive beliefs about their own abilities and use appropriate cognitive strategies such as critical thinking, organization, rehearsal, and elaboration. By contrast, less regulated learners do not see the value of learning and are often unwilling or unable to set goals. They act reactively and impulsively rather than reflectively and often fail to delay gratification. They focus on rote memorization rather than on deep and effective learning strategies.

Cyclical Phases of Self-Regulation

According to Zimmerman [5], self-regulation of learning involves three cyclical phases. Specifically, during the *fore-thought* phase, learners, as proactive agents, engage in self-generating goals, strategic planning, intrinsic interest on tasks, and sustain self-efficacy beliefs. Then, self-regulated learners proceed to self-monitor their goals, beliefs, and use of strategies by comparing their performance with appropriate standards, by seeking help when it is necessary, and by engaging in social and environmental control. During this *performance* phase, learners initiate actions by which they enact volitional control and use strategies such self-instruction, imagery, self-monitoring, and attention control. Finally, during the *self-reflective* phase, the process of self-regulation ends with learners' self-reflection of their level of satisfaction with task completion and self-evaluation of task completion. During this phase, learners initiate self-evaluation of their performance, examine their attributions and self-reactions, and adapt their performance according to their successes or failures.

Components of Self-Regulation

An important motivational factor associated with self-regulation and academic achievement is self-efficacy. *Self-efficacy* refers to the beliefs that individuals possess about their ability to perform an expected task [1, 5]. Students with high self-efficacy may decide to continue working on an important assignment when anxiety arises or when faced with tempting alternative activities. However, students with low self-efficacy beliefs may not only succumb to a temptation, they may let disruptive thoughts interfere with performance.

Effort regulation is another self-regulatory variable associated with achievement [4]. Effort regulation refers to students' intention to put forth resources, energy, and time to secure completion of important academic tasks [4]. In an academic setting, self-regulation of academic tasks is imperative because it could determine academic achievement and performance. It is well documented that deficiencies in self-regulation of learning, cognitive capacity, and poor study habits interfere with academic performance among learners [5].

Self-regulation has three components. First, self-regulated learners engage in *self-observation* by scanning, examining, and viewing their own behavior, feelings, emotions, and reactions. Second, effective learners engage in *self-judgment* by comparing their behavior and actions to established standards such as teachers' rubrics or consulting knowledgeable peers or adults. Third, skilled learners engage in *self-reflection* by responding effectively to the outcomes of their efforts. These appropriate responses range from

engaging in self-praise and self-reward for successfully completing designated tasks to changing strategies that were not helpful in the attainment of specific goals.

Relevance to Childhood Development

Self-regulation during skills acquisition could explain individual differences among learners. In the classroom, some students exhibit adaptive self-regulatory strategies and motivational patterns while engaging in academic tasks, such as exerting appropriate effort for success, enjoying the challenge, using appropriate learning strategies, setting specific goals, and displaying high self-efficacy levels [3]. In contrast, other students cease trying, lose interest in the activity, are unable to set specific goals and strategies, and have low self-efficacy [3]. Students exhibiting low skills to self-regulate their behavior rarely achieve high levels of academic success.

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Self-Regulation of Emotion

► Regulation of Emotion

Self-Reinforcement

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Synonyms

Reinforcement; Self-consequating; Self-motivation;
Self-reward

Definition

Self-reinforcement is a process whereby individuals control their own behavior by rewarding themselves when a certain standard of performance has been attained or surpassed.

Description

Self-reinforcement is a method of self-conditioning that acts to strengthen the association between certain stimuli and certain responses [8]. In the behavioral theory of operant conditioning, the most fundamental principle is that a response followed by a reinforcer is strengthened and is therefore more likely to occur again [7]. Reinforcement, then, is the act of following a response with a reinforcer and is one of the primary tools of operant conditioning.

Socially-mediated reinforcement (or direct reinforcement) involves the delivery of reinforcement from another person [3, 7]. In his description of social cognitive theory, Bandura [3] proposed two other forms of reinforcement: vicarious reinforcement and self-reinforcement. Vicarious reinforcement occurs when an observer witnesses another person being reinforced for a behavior, which results in the observer increasing his production of that behavior [2]. Self-reinforcement, on the other hand, occurs when an individual establishes a personal standard of conduct and then rewards himself based on successful attainment of that standard [3]. An example of this would be a student who decides she will treat herself to dessert if she can complete one more chapter in her textbook.

Self-reinforcement processes have played a prominent role in behavioral theories of self-regulation (sometimes referred to as self-control or self-management; [4, 5]). Self-regulation of behavior involves three key sub-processes: self-monitoring, self-instruction, and self-reinforcement [6]. Although scholars differ somewhat in their description of the self-reinforcement sub-process, they all agree that behavior can be acquired and maintained through the self-administration of reinforcers that are contingent on the performance of certain responses [4]. For example, Bandura [1] argued that self-reinforcement represents an essential facet of self-regulation in that individuals regulate their behavior by making self-rewards contingent on self-prescribed standards of performance. In Bandura's [1] view, self-reinforcement has three defining properties. First, individuals must have full control of reinforcers such that they are freely available. Second, reinforcers are self-administered contingent upon performing requisite behaviors, which necessarily entails the self-denial of awards until the conditional behavior has been

accomplished. Finally, self-reinforcement requires the adoption of performance standards that determine the specific criteria for reinforcement [1].

Social cognitive theorists have described self-reinforcement (or so-called self-consequating) as one of the many strategies used by students to self-regulate their learning and motivation [8, 10]. In an attempt to address the dynamic, adaptive nature of self-regulation, contemporary social cognitive views go beyond previous behavioral theories by considering not only behavioral factors but also cognitive and affective components [6]. For example, Zimmerman and Martinez-Pons [10] found that elementary school students reported using various self-consequating strategies, such as giving themselves concrete rewards for finishing school work in the face of other more appealing activities. Moreover, Wolters [8] described empirical evidence that in addition to concrete rewards or pleasing behavioral activities, students may also make verbal statements to themselves as a more immediate way of self-consequating their motivation and behavior. For instance, while reading a textbook, a student might tell himself, "You read another chapter, great job! You are making outstanding progress now." Ultimately, using such self-praising or self-reinforcing statements has been found to be an effective means of increasing one's effort while completing academic tasks [8].

Relevance to Childhood Development

As an important component in self-regulation, self-reinforcement has been shown to be an effective strategy for controlling behavior, motivation, and learning. Furthermore, evidence from several theoretical perspectives indicates that learners who use self-reinforcement strategies also report more adaptive motivational beliefs, such as greater self-efficacy beliefs, the use of various cognitive and metacognitive learning strategies [9], and improved study habits and academic performance [5]. In sum, self-reinforcement is positively associated with a variety of favorable academic outcomes in children. Research has also revealed that self-reinforcement strategies can be learned and therefore can be taught by parents and teachers to support the growing independence of children. What is more, the reinforcement itself may be more important than the agent of reinforcement (self or others; [6]). In fact, research has shown that self-reinforcement can be as effective in modifying student behaviors as reinforcement administered by a teacher [5].

Self-reinforcement helps children become active agents of their personal and academic endeavors. It does so by giving them the personal belief that the outcomes of their efforts depend, in large part, on them, and that they decide

what consequences should follow their efforts and actions. Developmentally, self-reinforcement is initially supervised by parents and teachers at early stages of skill acquisition [6]. However, independence and free choice of self-rewards are internalized by children as they mature and acquire a stable level of self-regulation. Moreover, as children acquire the skills of self-reinforcement, teachers and parents continue to serve as social models for appropriate self-reinforcement behaviors. Eventually, children internalize the basic patterns of the models and begin to select, on their own, appropriate reinforcement consistent with the task at hand and their cognitive and social development. Although direct reinforcement administered by parents and teachers is important, the ultimate goal is for children to acquire the ability to engage in successful self-reinforcement of their own behavior, motivation, and learning.

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Self-Reliance

► Autonomy

Self-Report Measures

► Behavior Assessment System for Children: Second Edition (BASC-2)

Self-Representation

► Self-Concept

Self-Restraint

► Inhibition

Self-Reward

► Self-Reinforcement

Self-Talk

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Synonyms

Egocentric speech; Inner speech; Internal dialogue; Internal monologue; Private speech; Verbal rehearsal and self-statements

Definition

Self-talk refers to a person's talk to oneself about oneself (e.g., [4, 29, 31, 33]). Self-talk includes all the intentional and automatic self-focused aloud or within one's own thoughts that run through an individual's mind [9]. The notion of automatic self-talk emphasizes that individuals are not always aware of doing so [35].

Description

Self-talk seems to be one of the most frequent cognitive activities in human life, in that almost every minute of our waking lives we talk to ourselves [24]. Hence, it is plausible, following the common notion in psychology that emotions and behavior can be generated through multiple cognitive processes, to assume that self-talk may provide a direct impetus for human emotion and behavior [10]. Yet on the other hand, it could be expected that the emotional states that are activated by self-talk may intensify the impact of self-talk and contribute additionally to influence behavior [23].

A growing body of empirical results has helped to expose the role of self-talk as an important strategy in reasoning [16], problem solving [8] or in planning (Morin, 1988). A burgeoning literature shows that self-talk is closely related to self-awareness [24], self-efficacy (e.g., [32]) and plays a crucial role in self-regulation [9, 21]. According to Depape et al. [8], self-talk seems to be a prerequisite of personal intelligence [12, 13] and of emotional intelligence [30] since it helps to integrate perspectives of others in one's own private speech and perspective. Segrist (1995) maintains that self-talk fosters both private self-consciousness and public self-consciousness because it facilitates acquiring information about the self. According to Morin [24], the frequency, duration and intensity of self-talk increases when conflicting perspectives within the self or between self and others occur.

It is crucial to differ between self-talk with positive (e.g., you can do it!) or negative (e.g., you are a loser) contents. Empirical results show that positive self-talk fosters creativity [3] and is associated with higher athletic performance [7, 22] whereas negative self-talk is related to poorer athletic performance (e.g., [17, 20]). These findings have stimulated interest in intervention programs fostering positive self-talk and reducing negative self-talk in athletes (e.g., [1, 34]). Reinforcement of athletes to use positive self-talk and avoid negative self-talk is perceived to be one of the most strongly advocated and frequently applied coaching strategies [15, 28].

Another line of inquiry has focused on the antecedents and consequences of self-talk in abnormal behavior and psychological disorders (e.g., [5, 14, 27, 36]). Studies have shown that negative self-talk in adults is related to onset and progression of depression [2], agoraphobia [6], drinking [26], and pathological gambling [11]. According to Kimberli et al. [19] studies with adolescents provide consistent findings with the adult literature. Hence, a cornerstone of cognitive-behavioral therapy of emotional disorders is the reduction of automatic negative self-talk and its replacement with neutral or positive self-talk (e.g., [18]).

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Self-Treatment

► Self-Care

Self-Understanding

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Synonyms

Self-Knowledge

Definition

Self-understanding is the individual's cognitive representation of the self which includes awareness of one's characteristics, traits, talents and abilities, as well as thoughts and attitudes that one has about the self.

Description

Self-understanding focuses on the cognitive processes involved in personal identity and individuation as opposed to other-oriented processes of social

understanding. It emerges in early childhood and develops through late adolescence as the individual has various experiences and as cognitive processes mature. Self-understanding includes self-evaluation that is foundational to self development, including self-worth and self-esteem.

Relevance to Childhood Development

Most research on the development of self-understanding focuses on early childhood through late adolescence, ages 4–18. Self-understanding emerges in childhood and develops through late adolescence as children become increasingly aware of their own characteristics, traits, talents and abilities. These self-perceptions are based on the experiences of the self in context, such as interactions with others including parents, peers or society at large. Such experiences foster positive or negative self perceptions relative to the image reflected by the other and internalized by the self.

In the nineteenth century, William James proposed that the self consisted of the “I” or subjective and “me” or objective self [2]. The subjective self embodies unconscious processes that may not be observable. The objective self is action oriented and observable. James proposed that the subjective self may be understood through its objective component. According to James, experience is the source of knowledge about the self. G.H. Mead [3] further proposed that self perception is derived from interpersonal interaction, in that one derives a sense of “me” from the perspectives of others. Experiences internalized by the subjective self inform self-understanding, and consequently impact behavior manifested by the objective self.

On the basis of the work of James and Mead, Damon and Hart developed a self understanding model in which they conceptualize individuation or the differentiation of the self from society [1]. In Damon and Hart's model (1988), self-understanding is divided into two dimensions, the “self-as-object” or the “me,” and the “self-as-subject” or the “I” self (p. 10). These dimensions are further divided into seven subcomponents with four age-related organizing principles which are hierarchical in level of complexity. The dimension of self-as-subject includes perceptions of the self as physical, active, psychological, and social. The dimension of the self-as-object includes the sense of continuity, distinctness and agency. The age-related organizing principles are categorical identification in early childhood, comparative assessments in middle-late childhood, interpersonal implications in early adolescence, and systematic beliefs and plans in late adolescence. Damon and Hart stress that while the development

of the organizing principles may be age-related, all dimensions are manifested during each age period. For example, at all ages, individuals have a sense of their physical, active social and psychological characteristics. Early self-characterizations are used in increasingly complex reconceptualized states in later age periods. For example, an individual in early childhood might describe him or herself in terms of a physical property, like being thin. However, by late adolescence, the description should include a reflection of personal or moral standards, like associating being thin with eating moderately in consideration of world hunger.

According to researchers, the attainment of higher developmental levels of self understanding provides preferable conditions for positive psychological development. Self-understanding is not synonymous with but is foundational to self-esteem, self-concept, and self-identity.

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Self-Worth

► Self-Esteem

Selman's Stages of Friendship Development

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Definition

Selman's Stages of Friendship Development describe the social cognitive development of children as they make meaning of interpersonal interactions in the context of friendship. The friendship stages are based on Selman's social perspective coordination stages, which describe children's growing ability to differentiate and coordinate social perspectives in interpersonal interaction. The stages are age-related and hierarchical in complexity.

Description

Selman's levels of friendship development describe children's increasing capacity for mutual collaboration through the processes of intimacy and autonomy that occur in the context of friendship. Friendship levels are closely related to levels of social perspective coordination which describe the child's increasing capacity to coordinate perspectives. The friendship levels may be understood as an expansion on social perspective coordination as applied to the context of friendship. The levels coordinate strongly with developmental stages so that each level is associated with an age range. The behaviors are seen typically to emerge at the lower age limit and to be crystallized by the upper age limit. The five levels begin at 0 and end at 4.

Level 0: Ages 3–6 Egocentric Understanding of Friendship

At this level, actions are often equated with physical characteristics or capabilities rather than psychological intentions. This level is associated with the least differentiated level of social perspective coordination, Level 0.

Level 1: Ages 5–9 Unilateral Understanding of Friendship

Children realize that feelings and intentions may keep together or divide friendships. However, they tend to understand these feelings and intentions from only one individual's perspective as opposed to reciprocal perspectives within a relationship. For example, Selman and Schultz [1] state that children at this level might understand not being invited to a party in terms of being denied something they want to do but not necessarily in terms of being rejected by another.

At this level of social perspective coordination, children can differentiate between physical actions and psychological characteristics, such as intentions and feelings. However, this understanding is not sophisticated enough to detect differences between outward behaviors or appearances and inward feelings. Selman and Schultz [1] state that a child at this level still interprets subjective states of others in terms of surface actions (e.g., he must be happy because he is smiling).

Level 2: Ages 7–12 Reciprocal Understanding of Friendship

At this level, children use reciprocal social perspective coordination, and conceptualize trust, jealousy, and rejection in friendship in terms of reciprocal expectations for behavior, feelings and intentions. In level 2 social perspective coordination, children can view their own actions

from a second person perspective, and understand that one person may have multiple feelings simultaneously. They also understand that inward feelings may diverge from outward experiences (e.g., a person's smile does not necessarily mean that they are happy). They also understand that one can use outward appearance to mask inward feelings and prevent others from knowing how they really feel.

Level 3: Ages 10–15 (May Start as Early as 8) Mutual Understanding of Friendship

At this level, children understand mutual commitment within a relationship, rather than simply understanding each other's perspectives. Friendship is viewed as a bond of commitment that developed over time and through mutually shared experiences. Such a bond is not easily broken. Conceptualizations of jealousy, trust, and rejection are included in the bond of commitment between friends. This level is characterized by intense exclusivity in friendships as exemplified by some strong attachments in adolescent friendships. At this level in social perspective coordination, the child can step outside the perspectives of self and other to take a third person perspective to view friendship as an ongoing system characterized by reciprocity and mutually shared experiences.

Level 4: Ages Adolescence Through Adulthood Interdependent Understanding of Friendship

At this level, individuals move beyond the exclusivity of the previous level to understand that friends may be mutually close but also autonomous and independent.

At this level of social perspective coordination, individuals also achieve a conception of the unconscious, an understanding that individuals may be affected by thoughts and feelings that are not necessarily self-reflectively or objectively perceived. There is also an awareness that the meanings of friendship may be deeply entrenched in symbolic communication and understandings developed on the basis of shared history. Therefore, in interpersonal interaction, long standing friends may be able to communicate with a simple look or other symbolic gesture on the basis of their knowledge of one another.

Relevance to Childhood Development

Robert Selman has an ongoing interest in understanding and facilitating growth in children's development of interpersonal understanding or the capacity to coordinate perspectives. According to Selman, this developing ability to differentiate and coordinate the social perspectives of self and other cognitively and emotionally is the essence of

social cognitive development. Selman views progression in social coordination to be developmentally-related differentiations and integrations of meaning-making regarding children's personal experiences and social interactions. Selman has defined stages of interpersonal understanding in four domains, including friendship, peer groups, parent-child relations and individuals based on his social perspective coordination model. The levels of social perspective coordination are used to describe how children come to achieve their interpersonal understanding in the four domains.

Selman's friendship stages specifically provide a tool for the in-depth understanding and explanation of social and emotional development in the context of friendship. This model has been used in pair-therapy to help children share experiences and negotiate conflicts in dyadic relationships. It has also provided the foundation for the developmental of the interpersonal negotiation strategies model and for other intervention strategies.

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Semantics

Definition

The study of meaning in language

Description

Semantics is specifically concerned with how words and sentences convey meaning. Within semantics there are two forms of meaning, denotation and connotation. Denotation is the dictionary definition of a word, and connotation is a word's emotional overtones, assumptions, and other ambiguous meanings. The combination of denotation and connotation create word meanings in different contexts. Semantics encompasses word and sentence meaning, but also extends to the understanding of discourse. Discourse is the highest level of semantics, including conversation, stories, paragraphs, chapters, and books. Also, gestures, body language, and personal space all have semantic meaning.

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Semi-Objective Scales

► Rating Scales

Sense of Oneself

► Self-Concept

Sense of Self

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Synonyms

Identity; Self-Concept; Self-percept

Definition

The lived experience of being a self, and with the end of infancy and the development of a sense of a subjective self, identifying oneself as who one is.

Description

The sense of self has only recently been conceptualized in a systematic and comprehensive way by Daniel Stern [5]. Prior to Stern's work the self was discussed in the disciplines of philosophy and psychology, but without rooting it in any empirical science. Hence its usefulness was limited for psychology and for development even though it was taken for granted in many instances. For example, identity development was mapped out by Erikson [3] and identity disturbances were thought to occur in dissociative disorders [1]. However, without a systematic conceptualization or one based on empirical evidence, these phenomena only raised more questions about the role of the self or identity, rather than explaining them.

Stern delineated four major senses of the self: the sense of an emergent self, the sense of a core self (self vs. other), the sense of a core self (self with other), and the sense of a subjective self. His use of the term "sense" is deliberate and proposes an immediately lived and experienced, or sensed, self. This understanding of the self is new for psychology and due to its basis in empirical findings from infancy research, the sense of self, the subjectively experienced self, can now be studied in a more systematic and rigorous fashion. The sense of self is the subjective

perspective of the human person which changes qualitatively from infancy onward.

Relevance to Childhood Development

The relevance of the sense of self as a concept to childhood development is significant in its scope and its provision of a framework for exploring subjectivity. For those disciplines studying childhood development, the concept provides a useful foundation especially for addressing the subjectivity of the self. Childhood development has been dominated by the study of measurable capacities, skills and traits which are known to undergo significant change and organization in the childhood years. Any interest in subjectivity or the experience of being a self has been relegated to philosophers and poets or perhaps clinicians and education specialists. With the grounding of a concept in empirical evidence and developmental and neurodevelopmental science, the understanding of the self and its increasing differentiation and emerging organization as it develops has increased in important ways.

The orientation to development studies referred to as life span developmental psychology [2] benefits from a rigorous conceptualization of the sense of self since it addresses developmental phenomena occurring across the life span. It can use the sense of self concept as an anchor for the many complex psychological processes being studied including resilience, wisdom, memory and the effects of trauma on identity.

Siegel [4] addresses the developing mind by integrating neuroscience and attachment theory to show the self as the integration of evolving processes of meaning making and interpersonal relationships, and that there is no self without the other. Siegel's work has brought the idea of the self to its most useful place since it is now being harnessed to the exploration of the brain/mind and the very nature of what it is to be a self.

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Sensorimotor Dysfunction

► Developmental Coordination Disorder

Sensory Aphasia

► Childhood Aphasia

Sensory Curiosity

► Curiosity

Sensory Deprivation

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Synonyms

Restricted environmental stimulation

Definition

Sensory deprivation involves partial or complete loss of sensory stimulation, usually under involuntary circumstances. It has been associated with a number of psychological adversities but also with neural plasticity and therapeutic potential.

Description

Gathering information from the social and physical environment involves perceptual mechanisms, which in turn draw upon information supplied by the senses. Senses are cell types that have evolved to respond to different types of environmental stimuli, including vision, hearing, touch (somatic sensation), taste (gustation), smell (olfaction), balance (equilibrioception), proprioception (kinesthetic sense), and temperature (thermoception). These may be located in specialist receptor organs (e.g., nose, eyes) or located at nerve endings on the skin. The environmental data collected by these receptors are carried to the brain and cortex, where they are mediated by cognitive processes.

Sensory deprivation involves partial or complete loss of sensory stimulation, usually under involuntary circumstances. The term refers to a plurality of experiences, rather than a unitary experience. It can occur in one or more of these sensory modalities, and can sometimes be attributable to sensory overload to another modality, or sensory distortion, which prevents the individual from

drawing information from the local environment. It has been associated with a number of psychological adversities (see below) but also with neural plasticity and therapeutic potential.

Types/Sources of Sensory Deprivation

One motivation for exploring the effects of sensory deprivation is to gain a better understanding of the development of human perception, and the relative contribution of nature and environment upon these processes. The main foci of developmental inquiry into the effects of sensory deprivation have focused on two main areas, firstly, the effects upon typically-developing children, and secondly those with markedly atypical development where sensory impairment or difference is a mediating factor.

Research into the first type focuses upon children whose development is unfolding in sub-optimal or inadequately stimulating environments. These sensorily-deprived environments may be a consequence of active (violent) or passive abuse (e.g., neglect), over-anxious parenting, or chronic parental illness or disabilities.

The second type of sensory deprivation is associated with a range of congenital and acquired sensory abnormalities (e.g., visual impairment or blindness). It may be acquired, possibly associated with a number of identifiable neural insults, or reflect a wide range of neuropsychological disorders. The nature of the deprivation and the developmental consequences may vary according to many factors, including the precise source of deprivation.

In recent times, interest in this area has been somewhat influenced by its perceived relevance to other debates within psychology, both in the developmental field and elsewhere. Some common sources of sensory impairment are outlined in more detail below.

Early Research

In the 1950s and 60s there was a flowering of research into artificially-induced sensory and perceptual deprivation involving adult participants, the most famous under the direction of Hebb at McGill University (for review see [31]). In adults, sensory deprivation was associated with a number of cognitive and perceptual distortions, and more latterly, which came to be associated with panic, mental confusion, time distortion, hallucinations and depression.

Ethical Implications of Researching Sensory Deprivation

One of the difficulties in understanding the role of sensory deprivation in child development relates to the potentially

detrimental effect of experimentally inducing such experiences. Some commentators consider that sensory deprivation must be experienced for a longer duration than 1 day, to avoid confounding by other effects. Clearly, a need for prolonged exposure could lead to unquantifiable harm to juvenile participants, as would withholding intervention in a non-treatment control group drawn from a population with sensory disabilities.

In the case of studies involving adults, there has been concern over the application of pure research in sensory deprivation for military purposes (e.g., [29]). Contemporary anti-terrorism practices based on sensory deprivation work have attracted considerable political controversy. For example, McCoy [13] proposes that the CIA used psychological work on sensory deprivation as the cornerstone of practices designed to precipitate psychological breakdown. This has led to the APA's [1] position statement on psychology's role in such research.

Such concerns have had severe implications for the conduct of research in this area. This has resulted in some diversification in the pursuit of evidence. Subsequent directions have included prospective research with non-human participants, and retrospective research with victims of repressive political systems or highly impoverished environments. Subsequent basic research has largely been undertaken with animals rather than humans.

Animal Studies

Animal studies allow the exploration of both the physical and behavioral consequences of early deprivation, whilst human studies tend to only provide good access to the latter. Perhaps unsurprisingly then, most developmental research has been conducted using animals, mainly, but not exclusively, mammalian species including laboratory-reared rats, cats and primates, although there are now increasing concerns about animal welfare.

Typically, such research involves comparisons between animals reared in a range of deprived conditions, and enriched conditions. This research has provided some evidence for correlations between deprivation, neural development, and behavior.

The work of Harlow and colleagues suggests that the effects of early sensory deprivation may be long-term and have severe consequences for normal social functioning. They conducted a well-known but controversial series of experiments on rhesus monkeys between 1957 and 1963 examining maternal deprivation as a source of sensory deprivation. Some monkeys were removed from their mothers and placed in various conditions involving a terry cloth "mother" representation with or without a

milk dispenser, and a wire version. At times of stress, infant monkeys clung to the terry cloth models, but not the wire version, including the latter when designed to dispense milk. Harlow concluded that lack of contact comfort was psychologically stressful to infant monkeys. However it is unclear if some of the behavioral sequelae related to loss of opportunities to develop social interactional skills, or sensory deprivation per se.

There is evidence that early deprivation may have extended consequences for neural development. Rat studies have highlighted physiological correlates of early sensory deprivation, including decreases in brain volume, e.g., dendritic volume and glial density (Greenough, 1976).

In addition to psychophysiological studies, the behavioral sequelae of such impoverished environments have been explored in a number of studies. Sackett [21] observed higher levels of motor activity in dark reared rats that persisted over time, however resistance to novelty proved somewhat more amenable to change. Dodwell, Tinney, and Emerson [5] found that kittens reared in dark conditions displayed more visual stimulus-seeking behavior than controls.

Although non-human primates have many similarities in neural architecture, it remains unclear how far these findings may be generalized onto developmentally immature humans.

Developmental Studies and Sensory Deprivation

Animal studies suggest that optimal maturation of the infant's brain and the subsequent behavior of the organism is somewhat contingent on the sensory information available to it. One of the key ideas of mid twentieth century Developmental Psychology is the notion that human development is predicated on interaction with people and the physical environment to some degree (c.f. Piaget, Bowlby). In common with many areas of psychology, evidence from sensory deprivation research has been mobilized in debates between supporters of nativist (e.g., Chomsky) and empiricist (e.g., [7]) theories of brain development.

Whilst there is direct empirical evidence that sensory stimulation may enhance infant development (e.g., [22]) ethical constraints mean that there is rather less research about how sensory deprivation may negatively influence development. The available evidence is typically drawn from studies of the effects of early sensory deprivation due to sensory disability, or where development is unfolding in less than optimal circumstances during sensitive periods, or over a sustained time span. Some of the latter is principally correlational, and secondary to

the central concerns which the research was designed to address.

Studies of sensory deprivation, and variables around the onset and duration of sensory deprivation, have provided useful evidence of “sensitive” or “critical periods” in development, both in terms of the temporal correlates of consequential damage, and recovery for the adverse circumstances.

The Effects of Neglect

Important evidence has been provided by studies of children recovered from extreme deprivation and neglect, where human (in)action provides sub-optimal sensory stimulation over a period of time. This may involve familial neglect, or institutional neglect experienced by those developing in public care systems. However more can often be said about the social context in which neglecting abuse occurs, and adolescent social outcomes, than the precise nature of the sensory deprivation which is alleged to have taken place. It can be difficult to isolate the effects of other adverse life events such as poor nutrition. The potential for recovery from these adverse sensory events has proved to be a major preoccupation in this research field.

The Harlow studies (see above) linked deprivation of the mother’s stimulation to poor social outcomes. Bowlby’s study of children hospitalized for tuberculosis who had limited contact with their parents showed lower IQ scores in this group. However, it is difficult to partial out the effects of their illness, or the quality of care received, possible sensory deprivation, etc.

One of the best known cases where sensory deprivation had a potentially clear role is that of “Genie.” She was raised in Los Angeles and experienced severe sensory and social isolation from the age of 20 months to 13 years 7 months at the hands of an authoritarian father and a visually impaired mother [4]. Although Genie did acquire some vocabulary and assembled word strings, she appeared unable to acquire standard syntax. This provides some support for Lennenberg’s hypothesis that there may be critical (or at least vulnerable) periods for aspects of language learning. It was also noted that Genie displayed enhanced development in gestalt perceptual skills, considered to be a right hemisphere compensation for sensory impairment to left-hemisphere function (language experience). However, these inferences may have been confounded. There has been an ongoing controversy as to the extent to which Genie may have been globally mentally retarded.

Further evidence has come from studies of children who had been previously cared for in severely depriving

state institutions in Romania. Some of these were adopted outside the country during early childhood, and future care usually took place in relatively enhanced settings. In a study conducted when adoptees were 6 years old, Rutter, O’Connor and the English and Romanian Adoptees Study Team [20] found that children kept in state institutions for up to 42 months showed a comparable rate of progress to control English children adopted before 6 months of age. A substantial minority had much poorer adjustment. Whilst it is not possible to partial out the precise contribution of sensory deprivation in these outcomes, it provides further evidence of the reversibility of effects of early deprivation.

Much research has been concerned with the behavioral consequences of early neglect or abuse later in the developmental trajectory. Early neglect or abuse has been associated with higher aggression in adolescents, for example, Bowlby’s (1946) group comparisons of juvenile delinquents (thieves and non thieves) found a higher percentage of the former group had been separated from their mothers for 6 months or more within the first 5 years of life, and inferred that that maternal deprivation led to juvenile delinquency. There is some evidence that behaviors arising from early experience may be linked to vulnerability to new adversities (see [3]), perhaps by putting themselves in circumstances where sensory deprivation may be re-established.

Nevertheless, the degree to which early experience of sensory deprivation is represented in enduring change in the child’s development, and the persistence of maladaptive behavior awaits further clarification. Outcomes may be open to influence by a range of variables, including time.

Neural Plasticity

Neural plasticity refers to structural cortical changes which create or modify functions in the brain in response to environmental input. It can offer the possibility of compensating for localized impairment of isolated areas of sensory processing. This is often referred to as the “Sensory Compensation Hypothesis” (e.g., [19]). There have been several empirical studies that have challenged the generalizability of this assumption (e.g., [11]).

Noting that hearing impaired individuals often develop higher visual acuity, and persons with visual impairments often display superior auditory and tactile performance, neurobiologists have been keen to explore the implications of localized sensory deprivation in their studies of brain plasticity. There has also been increasing interest in the extent to which early or later brain plasticity may influence the course of development, both within hypothesized “sensitive periods” and beyond them.

However, the benefits may be balanced by other loss of function, thus Stevens and Neville [23] characterize neuroplasticity as a “double-edged sword.”

Sensory Experience in Clinical Populations with a Sensory Impairment

Sensory impairment may have a minor or profound influence on child development trajectories, which is somewhat dependent on the nature and severity of the impairment. The degree of impairment may also be associated with the context in which development is taking place, e.g., the availability of assistive technologies and early intervention. It is often difficult to precisely describe its unique influence, as a number of other variables may be in play (e.g., intelligence).

In these populations, normal stages of sensory processing from the sense organ (e.g., the retina) are interrupted at some point, either due to some congenital disorder or acquired. Sometimes this will involve multiple senses. Thus children with sensory impairments do not have the same potential for sensory experience as non-impaired individuals, regardless of any limitations upon the opportunities available to the latter group. At this stage, it becomes more useful to think in terms of restricted access to sensory experience rather than sensory deprivation.

Sound Deprivation via Hearing Loss

Deaf or hard of hearing children experience some degradation of the stimulus to the cochlear and/or some impairment in the function of the cortical regions associated with processing. The sensory deprivation involved in hearing loss may have pervasive implications for child development. Hearing losses fall into two broad categories, although there may be a mixed expression in any individual. These are firstly conductive hearing loss (where there is some impediment to the passage of sound), and secondly, sensorineural loss, which involves damage to the nerves or hair cells of the middle or inner ear. This may result in sound distortion rather than sound dampening.

Pre-lingual and early acquired deafness can have pervasive effects upon child development. Precise developmental trajectories are influenced by a number of factors, including the use of sound perception support technologies like cochlear implants and the age of implantation (for discussion see [6]).

Cognitive, linguistic and socio-communicative developmental delays can be somewhat offset by early introduction to a sign language. Children born into signing families may have no developmental delay in acquiring language. The constraints on social experience may delay the onset of Theory of Mind capacity in this population [17].

There is much evidence that hearing loss is accompanied by cortical reorganization. This may involve compensatory development and augmentation of other senses. However, such benefits may be offset by degradation or non-development of mechanisms within the affected sense. This is most relevant when the possibility exists for corrective intervention such as the use of amplification devices or cochlear implants. Earlier implantation is often associated with better outcomes, especially where there are no comorbid impairments such as general learning difficulties.

Light Exclusion and Visual Impairment

For some species, the consequences of light exclusion or diffusion for short periods are apparently negated after a period of normal light exposure. In humans, there may be temporary refocus of other sensory media which can be rebalanced. For example, Lewald [9] reported that non-impaired participants' orientation to acoustic targets were increased following 90 min of light exclusion, an effect negated after 3 h of re-exposure to normal lighting conditions.

An important source of evidence for the effects of light deprivation on human development is drawn from studies of children with visual impairments, especially those with corrected vision. The term “visual impairment” is a category descriptor for a wide range of neurobiological and physiological impairments that result in less than optimal vision. Some may experience low visual acuity, and others may be restricted to light perception only, about one in ten may have no vision at all. These impairments may be congenital, or later acquired. There may also be comorbid symptoms which further complicate the course of development.

Like deaf children, this group may be delayed in socio-cognitive development [18]. This may be related to light deprivation, in restricting access to the visual information used to manage social encounters with others such as eye gaze and gestures. There is some evidence that this may lead to pragmatic impairments in this population, although it has been unclear whether this reflects some confounding with comorbid disorders. However, James and Stojanovik (2006) observed such impairments in a small cohort of visually impaired children without co-present pathologies. Blind children are likely to require additional educational support to learn tasks commonly taught using imitation, or visual inspection, including self care routines.

Many researchers have focused upon the implication of visual deprivation for the notion of critical or sensitive periods (see above). Lewis and Maurer's [10] study of children with dense congenital cataracts has provided

evidence of multiple sensitive periods where adversity can influence visual development. Their findings suggest domain specificity, with longer critical periods being reported in terms of acuity and peripheral vision, but shorter periods of sensitivity in relation to global motion perception.

Sensory Deprivation and the Etiology of Autism Spectrum Disorders

Distinctive behaviors and socio-cognitive deficits observed in congenitally blind and deaf children can also feature in the presentation of autism spectrum disorders (ASDs). For example, the terms “blindisms,” “deafisms,” and “autisms” may be mobilized to refer to substantially similar stereotypical behaviors. These overlaps, together with high functioning persons’ with autism own reports of sensory problems, have led some commentators to hypothesize that sensory impairment may have some etiological role in the disorder.

Treatments involving sensory deprivation or sensory substitution are sometimes used to manage the behavior of children with severe learning impairments. Zentall and Zentall [30] proposed that there may be an optimal level of sensory stimulation for “disordered” children, e.g., those with hyperactive behaviors and autism. They suggest that their “optimal stimulation model” supported by sensory interventions may offer opportunities for individuals to attain homeostasis.

A treatment approach that attempts to create an optimal sensory environment is that of the “Snoezelen” or other “sensory” room, where light levels and ambient noise may be reduced, and substituted with managed single or multiple sensory stimuli in an effort to reduce challenging behaviors or stimulate motivationally challenged or severely mentally impaired individuals. However effective these may be in addressing target behaviors, it is unclear if they provide evidence for sensory problems in these populations.

It is unclear whether the processing of available sensory information in ASD may be linked to cognitive impairment, and to what extent it may be elective, e.g., eye and ear covering to screen out unwanted stimuli. Autism may involve multiple sources of sensory deprivation, which would be quite challenging to unravel. However, in producing symptoms that have parallels with those observed in neglected or individuals with sensory impairments some possible crossover in intervention practices may be identified.

Future Directions

The early focus in the study of sensory deprivation moved from direct effects to behavioral and functional recovery

(e.g., [27]). Much relied on observed correlations between behaviors, known sources of sensory impairments or life events. However, the relationships between these variables are generally not linear, and the consequences of sensory deprivation are more complex and nuanced than earlier work may have suggested. Moreover, the brain plasticity which offers scope for compensatory development may also be responsible for loss of functional capacity where very early intervention is not possible. The development of sophisticated neuro-imaging techniques will facilitate more sophisticated modeling of neural processes, which in turn should provide greater clarity about the operation of these variables.

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Sensory Integrative Dysfunction

- Developmental Coordination Disorder

Sensory Motor Stage

- Piaget's Sensorimotor Period

Sensory Register

- Iconic Memory

Sentence Structure

- Syntax

Separation

- Ainsworth's Procedure
- Divorce-Stress-Adjustment Perspective

Separation Anxiety

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Synonyms

Separation, attachment and

Definition

Behavioral and emotional manifestations of fear, worry, or upset associated with separation from home or from individuals to whom the child is attached. When symptoms are excessive or developmentally inappropriate, separation anxiety may be considered clinically significant.

Description

Separation anxiety is common throughout preschool age in children, typically emerging around 8–9 months of age. Intensity of reactions lessen over time, with developmentally normal separation anxiety typically disappearing by age 3 years, when children become capable of forming a mental image of the absent caregiver or attachment figure [2]. Length and intensity of separation anxiety reactions are often dependent on the child's temperament and age, as well as the parent's reaction to the child. Novel and unexpected separations can also cause a more intense or prolonged reaction.

Separation anxiety that is prolonged and developmentally excessive and inappropriate may lead to a diagnosis of *Separation Anxiety Disorder* [1]. These more serious reactions are often accompanied by physical complaints, nightmares, sleep difficulties, and refusal to leave home or the proximity of attachment figures for normal or routine activities.

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Separation, Attachment and

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Synonyms

Separation anxiety

Definition

Separation is the physical removal of children from attachment figures, usually the caregiver to whom they are attached. *Separation and Loss* is the title of John Bowlby's second volume in his trilogy of Attachment Theory [2]. Within this book, he addresses naturalistic responses in humans to separation from an attachment figure. Normative reactions include anxiety and anger, and in more extreme forms, depression. In child development, what constitutes separation and the subsequent behavioral response changes with age, and is reflective of the relationship itself. Separation from attachment figures has also been studied across the human life-span and in non-human primates.

Description

Separation of an infant from an attachment figure typically results in a distress reaction such as crying. Around age 1, this almost always occurs, unless the attachment relationship is an avoidant one [1]. As children get older, they are capable of emotional regulation and representational thinking, and thus more tolerant of separations from attachment figures, particularly when they are predictable or explained. For example, children going to school and parents working outside the home are predictable separations that should not result in crying and distress in children once they have begun school, and if they do, there may be cause for concern that the child has separation anxiety.

In Bowlby's Attachment Theory, he described normative responses to separation from attachment figures that he observed in children that were in residential care, and

thus separated from their mothers. The three phases are protest, despair, and detachment. The protest phase begins immediately upon separation, and lasts up to weeks on end. It is indicated by outward signs of distress such as crying, tantrum behavior, and searching for the return of the parent. Protest decreases during the despair phase, and children become withdrawn and helpless. The detachment phase implies loss of the original attachment, and children are emotionally distant from an attachment figure even if they returned. While these are normative responses to prolonged separation, there are also individual differences that define an attachment relationship. In Ainsworth's Strange Situation used to classify an infant-caregiver relationship, separations from and reunions with a parent are actually part of the task. In an insecure-avoidant relationship, for example, protest is minimal, as are smiling and greeting after reunion. In fact, there seems to be indiscriminate response to the parent and a stranger, and the child may even avoid the parent after the separation. In insecure-resistant infants, there is greater protest (e.g., crying, tantrums, anger), more clinging behaviour, and this distress is slow to resolve after reunion. Secure infants may protest the departure of a parent, but this distress is resolved after the separation ends. Overt behavior is also not the only way in which separation is studied. It is subject to some of the same physiological markers as other stressors, such as an elevated noradrenergic or cortisol response [3, 6].

Separation and attachment have been examined in common circumstances for children, such as family disruption in marital separation and divorce, serious illness requiring hospitalization, parents being away for extended work periods [5], children removed from parent's homes due to maltreatment and/or neglect, and children separated from parents during disasters and war-time events [7]. There is evidence that either marital separation of at least 6 months or divorce has a negative impact on teenager's attachments to parents, particularly when the separation occurs earlier rather than later in a child's life [10]. A history of child maltreatment is associated with later disorganized attachment, and this is likely due to a background of frightening parent-child experiences [8]. In this case, children may need to be taken into care and separated from the parent, although this is seen as an instance where parent-child separation is necessary and hopefully helpful for the child in the long run. These are all negative life events that include family disruption and separation from parents, and such events are associated with a decline in attachment security from infancy to adulthood in a predictable fashion [4, 9] and more normative parent-child separations such as those that come

from a parent working outside the home were initially hypothesized to result in attachment security problems for children based on Bowlby's original descriptions of separation. However, a large scale analysis of this kind of separation has not supported this hypothesis. So separation in and of itself does not have negative consequences for children, but may when combined with other negative family circumstances.

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Serax®

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Synonyms

Oxazepam

Definition

A prescription medication FDA approved for the treatment of anxiety and management of alcohol withdrawal.

Description

This medication is a benzodiazepine, a central nervous system depressant, available in tablets and capsules.

The recommended starting dose for this medication is 10 or 30 mg taken 3 times a day to 4 times a day. Maximum suggested dose is 120 mg daily. This medication should only be taken as directed by a doctor and is usually taken only for a short period of time. This medication may become habit forming.

Some side effects are listed here: drowsiness, dizziness, memory impairment, headache, amnesia, rash, tremor, and blurred vision. Certain side effects may go away during treatment.

Relevance to Childhood Development

Serax® is not FDA approved for use in children under 12 years of age.

This medication may cause paradoxical effects in children and adolescents, meaning they may become hyperactive or show aggressive behavior. Children may be more sensitive to the side effects of Serax®.

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Serious Emotional Disturbance (SED)

► Behavior Disorders

Seroquel

► Quetiapine

Seroquel XR

► Quetiapine

Serotonin

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Synonyms

Neurotransmitters

Definition

A type of neurotransmitter which is involved in communication between neurons in the central nervous system.

Description

Serotonin affects areas of the brain typically involved in depression, eating, sleeping, memory, sexual behavior, and aggression. Serotonin, like other neurotransmitters, aids in communication between neurons by passing from the axon of one neuron through the synapse, or gap between neurons, to the dendrites of another neuron. Serotonin is received by 5-hydroxytryptamine (5-HT) receptors in nerve cells and most often acts as an excitatory neurotransmitter. Serotonin can be toxic in high doses which has been termed serotonin syndrome. Serotonin syndrome typically results from taking two or more drugs designed to increase serotonin and produces symptoms such as hallucinations, vomiting, diarrhea, increased body temperature and heart rate, shivering, and confusion among others. If treatment for serotonin syndrome is not sought it can be lethal [1].

Psychopathology has been related to problems in serotonergic systems of the brain such as Major Depressive Disorder (MDD) and Obsessive Compulsive Disorder (OCD) wherein individuals with such disorders tend to have low levels of serotonin. Both disorders have been found to be effectively treated using selective serotonin reuptake inhibitors (SSRIs) [2, 3] which temporarily block the presynaptic neuron from reabsorbing the serotonin, thus allowing for more serotonin to reach the receptor sites on the postsynaptic neuron. Several types of SSRIs are available such as citalopram (Celexa), escitalopram oxalate (Lexapro), paroxetine (Paxil), fluoxetine (Prozac), and sertraline (Zoloft). Research has shown that SSRIs are effective for treating depression, OCD, and bulimia nervosa.

Relevance to Childhood Development

Since serotonin has been linked to the aforementioned disorders, examination of these disorders in childhood is relevant. Treatment of children with psychological

disorders such as MDD and OCD with SSRIs is fairly commonplace although warnings have been put in place due to increased risk of suicide among children, adolescents, and young adults. A cost-benefit analysis prior to the use of SSRIs in treatment and careful monitoring of individuals in this age range is recommended.

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Sertraline

► Zoloft®

Servicing Oneself

► Masturbation

Serzone®

► Nefazodone

Sesame Street

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Definition

Sesame Street is an educational children's television program aimed at children 3–5 years of age that is most

well-known for Muppet characters such as Big Bird, Bert, Ernie, Oscar the Grouch and others.

Description

In March 1968, Children's Television Workshop (CTW) was established through which Sesame Street was broadcast. Initially, CTW was given \$8 million to fund a 2 year project with the primary aim being to enhance school readiness in preschoolers, particularly children ages 3–5 years, with minority and low-income backgrounds. Funding for the program came from the US Department of Health, Education, and Welfare, Corporation for Public Broadcasting and private foundations such as the Carnegie Corporation, the Ford Foundation and others. The principal creators of Sesame Street in 1968 were Joan Ganz Cooney, Director of CTW, Lloyd Morrisett, vice president of the Carnegie Corporation and Gerald Lesser, a professor at Harvard University. Other creators included experts in child development as well as experts from the field of commercial television. One pivotal move by the creators was using Jim Henson's Muppets as main characters on the program. Along with songs resembling commercial jingles, Sesame Street was entertaining and educational, a first in the domain of "Edu-tainment." The five broad areas on which creators of Sesame Street intended to focus included social, moral and affective development; language and reading; mathematical and numerical skills; reasoning and problem solving; and perception.

In addition to summative research, which was designed to evaluate the effectiveness of Sesame Street on children it was reaching, another major component of Sesame Street was the emphasis on formative research. Research findings have concluded that for children who were 3–3.5 years old, watching Sesame Street was a strong predictor of vocabulary development. These findings were not as significant for older children. Importantly, children's vocabulary size increased when they watched Sesame Street alone, indicating that it was not necessary for parents to view and discuss the show with their child. In addition, viewing Sesame Street has been linked to: future positive performance in reading, math and school readiness; better ability at recognizing letters and reading books at an earlier age; and better grades in science, English and math 10–15 years later.

Relevance to Childhood Development

Because of the ubiquitous nature of television, it has become an almost steady companion in children's most critical years of development. Therefore, programs such as Sesame Street, which promote positive cognitive, social

and emotional development, have become crucial in meeting the needs of young children.

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Setting (Great Britain)

►Ability Grouping

Severe Emotional and Behavioral Problem

►Conduct Disorder

Severe Mental Retardation

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Synonyms

Cognitive impairment; Developmental delay; Developmental disabilities; Intellectual disability; Mental deficiency

Definition

Severe Mental Retardation is defined by the presence of significantly subaverage general intellectual functioning as well as significant limitations in adaptive functioning (adaptive behavior) present prior to the age of 18 years. Individuals with a diagnosis of severe mental retardation generally obtain IQ scores within the range of 20–25 to 35–40 [1, 3, 4].

Description

Severe mental retardation (MR) is described by the *Diagnostic and Statistical Manual of Mental Disorders-Fourth*

Edition-Text Revision [2] as impairment comparable to a range of IQ scores that fall within the range of 20–25 to 35–40 [2]. Individuals with severe MR are limited in the areas of intellectual functioning and adaptive skills, typically exhibiting limited or absent levels of communicative speech. They are also likely to experience comparable limitation in the areas of self-care, home living, social skills, community use, self-direction, health and safety, functional academics, leisure, and work skills [2]. Symptoms are likely to manifest in both the individual's ability to master a range of cognitive skills and their ability to respond to environmental cues [5].

Individuals who fall within this diagnostic category comprise approximately 3–4% [2] of all individuals with mental retardation. Unique to this level of impairment is the strong likelihood of an identified etiology of genetic or neurological syndrome resulting in mental retardation, as well as a variety of other physical and psychological symptoms present from birth or early childhood. Concurrently, the presence of additional physical impairments such as cerebral palsy, epilepsy, and vision or hearing difficulties have been found to increase with level of intellectual impairment (intellectual disability). Co-morbid medical complications are also common.

Training typically focuses on areas of deficit such as self-care or social skills during school age and beyond. Individuals with severe MR are often able to function within a “workshop” or similar type of vocational environment. They generally adapt well to life within their family or group home environment, although some level of support and assistance will typically be necessary throughout their lives [2].

Relevance to Childhood Development

A diagnosis of severe mental retardation has weighty implications for both the child and his caretakers throughout development. Accessing services the child is entitled to often requires a working knowledge of government and school systems, including the Individuals with Disabilities Education Act (IDEA). This program provides adaptive education to all children within the least restrictive environment possible. Adaptations may also include school-provided speech, physical, or occupational therapies as appropriate. Within the family or caretaking environment, education of the parent or primary caretaker is essential regarding available resources and developmental expectations. Because the development of children with Severe Mental Retardation is significantly limited in most cases, families of children with this diagnosis should be aware of what it means for their child in particular.

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Severity of Mental Retardation

► Retardation, Degrees of

Sex-Education Programs

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Synonyms

Sexuality education

Definition

According to the Sexuality Information and Education Council of the United States (SIECUS), “Sexuality education is a lifelong process of acquiring information and forming attitudes, beliefs, and values. It encompasses sexual development, sexual and reproductive health, interpersonal relationships, affection, intimacy, body image, and gender roles” [6]. A sex-education program is one way by which children may learn about sexuality.

Description

In today's society, the sexual health of youth is of paramount importance. According to a recent study by The Guttmacher Institute [1], adolescents in the United States are having sexual intercourse, becoming pregnant, and contracting sexually transmitted infections (STIs). Specifically, 46% of all adolescents aged 15–19 years old have

engaged in sexual intercourse. In addition, approximately 750,000 teenage girls become pregnant each year. Of these pregnancies, 82% are unintended and over 25% are terminated by abortion. In comparison to other developed countries, such as England, Wales, Canada, the Netherlands, and Japan, this rate of teenage pregnancy ranges from twice to eight times greater. Finally, estimates of adolescent STI contraction approximate nine million new cases per year. Given the seriousness of these findings, it appears imperative that measures be taken to ameliorate these problems.

One possible solution to the sexual health problems of youth is sexuality education. Recently, Kirby [3] reviewed the effectiveness of programs for reducing teen pregnancy and STIs. Five general types of sexuality education exist: comprehensive sexuality education, abstinence-based, abstinence-only, abstinence-only-until-marriage, and fear-based programs [6]. Historically, controversy has existed regarding comprehensive sexuality education versus abstinence-only education, and this controversy has had a significant impact on federal funding of sexuality education programs [1]. That is, until recently only abstinence-only programs received federal funding. In practice, then, fewer adolescents were receiving information about birth control, and more adolescents were receiving information about abstinence. Interestingly, however, research demonstrating the effectiveness of abstinence-only education is lacking [1]. Abstinence-only education does not appear to delay the onset of engagement in sexual activities, and it may inadvertently result in an increase in unwanted pregnancies and STIs – as youth may be discouraged from using contraception.

Conversely, research suggests that comprehensive sexuality education, including an emphasis on skills building, is effective in reducing/preventing adolescent pregnancy and contraction of STIs [1, 3]. Sex-education programs are based on a model of comprehensive sexuality education emphasize abstinence is the only 100% effective method of preventing pregnancy and STIs and also address contraception, particularly for adolescents who are already sexually active [3]. The goals of comprehensive sexuality education may be viewed in terms of long-term goals and instrumental goals that work toward the attainment of the long-term goals. The long-term goals are threefold: (a) to postpone the onset of sexual intercourse, (b) to increase the use of contraception and condoms, and (c) to decrease pregnancy and birth rates. The instrumental goals of comprehensive sexuality education are fourfold: (a) to deliver correct knowledge to youth regarding human sexuality, (b) to offer a forum for youth to “develop and understand their values, attitudes, and

insights about sexuality,” (c) to assist youth in the acquisition and improvement of interpersonal skills, and (d) to help youth demonstrate responsible sexual behavior [6]. Comprehensive sexuality education programs do not appear to negatively influence one’s age of initial sexual intercourse, the frequency with which one has sexual intercourse, or the number of sexual partners one has [3]. Rather, comprehensive sexuality education programs have been shown to help delay the onset of sexual intercourse, decrease the number of sexual partners one has, and increase the use of contraceptives [1].

Schools are advantageous settings for sex-education programs [1, 2, 4, 5]. First, schools provide a structured system that allows for sexually education programs to reach all youth [4]. Second, considering the risk factor of age, schools provide access to young students (e.g., late elementary school) who will benefit most from sexuality education [4]. Finally, being in school is related to fewer at-risk sexual behaviors and lower pregnancy rates; therefore, a sexuality education program within a school may be more effective than one outside of school [2]. SIECUS has published guidelines for content that is appropriate for sexuality education of school-aged children [6].

Despite the many advantages of providing sexuality education in schools, controversy exists [1, 5]. First, although the policy of more than 66% of public school districts includes sexuality education [1], some wonder if school is the appropriate site to teach sexuality [5]. Second, among those who agree sexuality should be taught in school, debate exists between proponents of abstinence-only education and proponents of comprehensive sexuality education programs [1, 5]. For example, of the schools that have a policy to teach sexuality education, 86% require the promotion of abstinence. Specifically, 35% require instruction of abstinence only, while 51% allow for instruction of contraception as long as abstinence is taught as the preferred method. Furthermore, 50% of southern public school districts with a policy to teach sexuality education teach abstinence only, while only 20% of northeastern public school districts adhere to the same policy [1].

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Sexual Abuse

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Synonyms

Incest; Molestation; Sexual victimization; Shaken baby syndrome

Definition

The term “child sexual abuse” is complex. It is surprisingly difficult to define as operational definitions of each word in the term have varied across clinical, legal, and research contexts. Child sexual abuse is most commonly defined as sexual activity with a child where consent is not or cannot be given. This includes all sexual contact with children in which force or threat of forced is used, regardless of the age difference between participants. This also includes all sexual contact between a child and an older person (typically 5 or more years older) regardless of whether force or coercion is used.

Description

Sexual behaviors may involve contact or noncontact offenses. Noncontact offenses include genital exposure, voyeurism, showing a child pornographic material, or having a child undress or masturbate. Contact offenses include genital touching, oral sex, and digital, object or penile penetration (vaginal or anal).

Perpetrators that are a family member, including distant relations, in-laws, and step-relations are typically referred to as “intrafamilial,” whereas perpetrators who are not related by marriage or blood are referred to as “extrafamilial.” The majority of child sexual abuse cases involve intrafamilial perpetrators and a substantial proportion of extrafamilial offenders are known to the victim. Approximately 5–15% of offenders are strangers to the child.

Although adult men commit the majority of sexual assaults, a significant minority of sexual assaults are committed by youth. The Federal Bureau of Investigation's National Incident-Based Reporting System has indicated that youth under the age of 18 are responsible for 40% of the sexual assaults involving children under the age of 6. The majority of adolescent-perpetrated child sexual abuse involves intrafamilial victims.

It is important to note that all 50 states have laws that require certain professionals (e.g., physicians, nurses, social workers, day care workers, psychologists, and law enforcement personnel) to report suspected maltreatment. This requirement overrides professional confidentiality requirements and in most states, 24-hour reporting is available via a toll-free phone number.

Incidence and Prevalence

Child sexual abuse is an alarmingly prevalent problem in the United States. According to reports from child protective service agencies, in 2006 there were approximately 80,000 substantiated cases of child sexual abuse at the rate of 1.1 per 1000 children [6]. It is widely acknowledged that these figures do not represent accurate estimates. Many incidents of child sexual abuse, perhaps the majority, are never reported to law enforcement. Based on a comparison with retrospective reports and surveys with nationally representative samples, some reviews of research suggest that national incidence figures may represent less than one third of all occurring cases of child sexual abuse in the United States.

Child sexual abuse is pervasive across income levels and racial, cultural, and ethnic groups. The mean age of sexual abuse victims is approximately 9 years, ranging from infancy to age 17. Girls are significantly more likely to be sexually abused, although boys are more likely than are girls to be abused by an extrafamilial offender. Risk factors for child sexual abuse include physical or cognitive disability, and living with a parent whose ability to adequately nurture and supervise is compromised by substance abuse, violence, poverty, and single-parent status.

From 1990 to 2005, the number of cases of sexual abuse substantiated by child protective service agencies declined 49%. This is likely due to a combination of factors, including policy or program changes in child protection agencies, increasing awareness about child sexual abuse, improved parenting practices, economic improvements, greater numbers of agents of social intervention, and more effective treatment for mental health problems [1].

Consequences

Child sexual abuse, like other forms of adversity or trauma, does not affect children in a predictable or consistent fashion. The impact of the abuse depends not only on the severity and chronicity but also on how the abuse interacts with the child's individual, familial, and community characteristics. Further, research indicates that some youth exhibit little to no emotional or behavioral symptomatology after the abuse [2].

Nonetheless, research conducted over the last two decades indicates that child sexual abuse constitutes a major risk factor for a wide range of emotional and behavioral problems which can potentially be long-lasting. Short-term consequences include emotional distress and externalizing behaviors, including depression, anxiety, poor self-esteem, suicidal ideation, posttraumatic stress, substance abuse, self-harm behavior, sexual behavior problems, and delinquency. Further, research indicates some children exhibit difficulties with interpersonal relationships and social competence and negative or distorted attributions. However, two domains stand out as significantly more prevalent in sexually abused samples as compared to appropriate comparison groups (e.g., non-abused clinical samples). These domains are sexualized behaviors (e.g., excessive masturbation, exhibitionism) and posttraumatic stress symptomatology (e.g., reexperiencing the abuse, avoiding reminders of the abuse, and hyperarousal).

Similar to childhood consequences, long-term consequences of child sexual abuse also include emotional and behavioral disturbance, including chronic anxiety, depression, and anger, substance abuse problems, and negative or distorted attributions. Further, difficulty with interpersonal relationships and sexual problems (e.g., sexual dysfunction, sexual preoccupation) are more often reported by women sexually abused in childhood than their nonabused counterparts. Finally, women who have been sexually abused as a child are at a substantially higher risk of being physically and/or sexually abused in adulthood [3].

Treatment

There is a growing empirical literature on efficacious treatments for sexually abused and traumatized children [4, 7]. Interventions include brief psychoeducation and crisis interventions, short-term abuse-focused treatments and longer, more comprehensive interventions. Brief psychoeducation and crisis interventions are often implemented at the time of disclosure and are designed to assess the child and his/her family's needs and provide training in effective coping strategies. Brief interventions

are appropriate for asymptomatic children and are intended to prevent future sexual abuse and buffer the associated risk of developing psychopathology.

Abuse-specific cognitive behavioral treatment (CBT) is the most extensively researched intervention for child victims of sexual abuse. Reviews of the treatment outcome literature indicate this treatment is an effective treatment for post-traumatic stress reactions [5]. Abuse-specific CBT utilizes principles that have been shown to be effective with a number of emotional and behavioral problems. Components of the treatment include: psychoeducation, anxiety management, exposure, and cognitive therapy. Children and parents are provided knowledge and skills related to processing the abuse, managing distressing thoughts, feelings and behaviors associated with the abuse, enhancing safety and preventing revictimization. The majority of the most rigorous studies have included non-offending caregivers in the treatment protocol [5]. Inclusion of caregivers is important to address parental reactions, distress, and supportive recovery of the sexually abused child. Furthermore, inclusion of caregivers is essential for more comprehensive intervention, which may address behavior problems (such as noncompliance and oppositionality) with behavior management techniques or sexual behavior problems with behavior management techniques and parental supervision, communication, self-control, and sexual behavior rules.

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Sexual Assault

► Self Identity: Sexual Abuse of Adolescents

Sexual Exploitation

► Self Identity: Sexual Abuse of Adolescents

Sexual Identity

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Synonyms

Bisexual identity; Gender identity; Heterosexual identity;
Homosexual identity; Sexual orientation

Definition

Sexual identity can be defined as the understanding of one's values, beliefs, and roles as a sexual being; this is developed through the comprehensive process of exploring, assessing, and committing to one's sexual orientation and gender identity [5–7].

Description

Sexual identity is the process of developing a personal sense of self as a sexual being and encompasses one's sexual orientation and gender identity. Sexual orientation is defined as an individual's sense of personal and social identity based on one's sexual attractions, behaviors expressing those sexual attractions, and membership in a community of others who share them [2]. Individuals may identify as homosexual (attraction to one's same sex), heterosexual (attraction to one's opposite sex), or bisexual (attraction to one's same sex and opposite sex). Gender identity is defined as an individual's personal sense of identification as male or female [7]. In accepting one's sexual orientation and one's gender, an individual is able to formulate a personal set of values, beliefs, and roles.

Sexual identity processes may differ based on one's sexual orientation and gender. For a gay, lesbian, bisexual, or other non-heterosexual individual, sexual identity is developed through acknowledging one's same-sex attractions and identifying oneself as non-heterosexual [3].

For a heterosexual individual, sexual identity is developed through acknowledging one's opposite-sex attractions and identifying oneself as heterosexual [6]. A non-heterosexual individual (e.g., gay, lesbian, or bisexual) recognizes the societal ramifications of accepting a non-heterosexual identity, including the stigma, discrimination, and marginalization that may occur. Conversely, a heterosexual individual may recognize the acceptance and privilege that one may have as a heterosexual being.

Sexual identity also includes the process of accepting one's gender identity. Gender identity is the process in which an individual identifies as male or female, regardless of one's biological sex at birth. Gender identity is influenced through biological and sociological factors (e.g., biological factors including one's reproductive organs and hormones, sociological factors including one's family influences and societal messages about gender roles). Gender identity differs from sexual orientation, in that sexual orientation refers to whom one is sexually attracted to, while gender identity refers to the gender that one identifies with. For example, an individual who was born as a biological male may identify as a woman but may be sexually attracted to women; this individual might be described as a transgender woman (gender) and lesbian (sexual orientation).

There are several models of sexual identity development that describe processes for lesbian, gay, and bisexual individuals [5, 6]. One of the earliest and most widely recognized models in psychology is Cass's [1] six-stage model of gay and lesbian identity development, which consists of six stages: (a) *Identity confusion* (questioning one's initial experiences of same-sex attraction), (b) *identity comparison* (internalizing the stigma that accompanies same-sex attractions) (c) *identity tolerance* (assuming that experiences of same-sex attraction means that one is likely gay or lesbian), (d) *identity acceptance* (identifying same-sex attraction as indicative that one is gay or lesbian), (e) *identity pride* (accepting oneself as gay or lesbian and identifying with other gay or lesbians), and (f) *identity synthesis* (integrating one's sexual orientation into one's sense of self).

Sexual identity can be influenced by a number of factors, including one's religion, culture, and family [4, 7]. Most major world religions teach negative messages about non-heterosexual orientations and/or refer to gay, lesbian, or bisexual orientations as "immoral" or a "choice." Additionally, in most cultures and societies, lesbian, gay, and bisexual individuals are stigmatized and marginalized; in some countries, homosexuality or bisexuality is illegal and prone to punishment. Finally, an individual's family may also provide messages about sexual identity to its members, particularly to one's children.

These familial messages are heavily influenced by culture, religion, and the media.

Through the development of sexual orientation and gender identity, along with messages from family, culture, and media, an individual is able to develop values, beliefs, and roles as a sexual being. Sexual identity values may include the importance of family, community, individuality, or freedom of expression in one's life. Sexual identity beliefs may include one's thoughts about equal rights, same-sex marriage, raising children, or practicing monogamy. Sexual identity roles may include how one behaves in romantic relationships, in family systems, in friendship networks, and in work settings. The cumulative development of these values, beliefs, and roles all contribute to one's personal sense of self as a sexual being.

Relevance to Childhood Development

Sexual identity development may begin during early childhood, when an individual recognizes her/his first sexual attractions to others. This first awareness of sexual attraction is often described as beginning with the Oedipus complex for boys or the Electra complex for girls. The Oedipus complex is defined as a stage in life where a boy is fixated on his mother and competes with his father for maternal attention, while the Electra complex is defined as a stage in life where a girl is attracted her father and rivals with her mother for paternal attention. Sexual identity development continues when children interact with peers for the first time and they experience sexual attractions with individuals of their same sex or opposite sex or both. These early experiences with sexual attraction during childhood may have lasting impacts on one's sexual identity during adulthood and may influence how one understands sexual orientation and to whom individuals are sexually and romantically attracted.

Additionally, children begin to learn about sexual orientation, gender and gender roles from their families, schools, religious groups, and the media during early childhood. These messages may influence one's ability to explore sexual orientation, gender roles, and gender expectations in positive and negative ways. For example, young boys may be encouraged to be leaders and authoritative while young girls may be encouraged to be more submissive or passive. Concurrently, young girls may be encouraged to be more emotionally expressive while young boys may be encouraged to repress emotions. Both groups may also learn that it is important to behave according to their gender norms and only be romantically attracted to the opposite sex.

These messages about sexual orientation and gender from early childhood may have lasting impacts on one's

sexual identity as an adult. When children receive positive messages about sexual identity from their families and other role models, they are likely to gain better self-definition and positive self-esteem during adolescence; conversely, if they receive negative messages about sexual identity, they are likely to suffer other mental health consequences, particularly if they identify as gay, lesbian, or bisexual [4].

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Sexual Intimacy

► Sexual Relationships

Sexual Labels

► Sexual Orientation

Sexual Maltreatment

► Self Identity: Sexual Abuse of Adolescents

Sexual Molestation

► Self Identity: Sexual Abuse of Adolescents

Sexual Orientation

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Synonyms

Sexual identity; Sexual labels

Definition

Sexual orientation is a construct involving sexual attraction that encompasses a variety of domains and includes behavioral, emotional, and social manifestations. Sexual orientation pertains to sexual attraction but may not result in the commission of sex acts or other sexual behavior. Despite instability in the reporting of sexual orientation or manifestations of sexual attraction over time, sexual orientation is considered to be an enduring trait that may manifest differently across the lifespan.

Description

According to the American Psychological Association (2004), “sexual orientation is an enduring emotional, sexual, or affectional attraction toward others,” inherently different from biological sex, gender identity, and gender roles [1]. While many view sexual orientation as exclusively linked to sexual behavior, sexual orientation in its truest form pertains to persistent patterns of attraction across a variety of domains, regardless of whether or not the attraction results in any sexual act. Over the course of the past 50 years, heterosexuality, or attraction to members of the opposite sex, homosexuality, or same sex attraction, and bisexuality, attraction to members of both the same and opposite sex, have emerged as the most frequently researched manifestations of sexual orientation. However, though frequently conceptualized as a largely dichotomous concept, with individuals identifying exclusively as heterosexual or homosexual, and some oriented in between (bisexual), research indicates that sexual orientation is most accurately represented as a continuum of orientations [11–13]. According to Kinsey, who developed the Heterosexual–Homosexual Rating Scale [11], individuals may find that their sexual orientation is most accurately characterized by degrees of attraction ranging from exclusively heterosexual to exclusively homosexual. Specifically, Kinsey posited that sexual orientation can be described as exclusively heterosexual, no homosexual; predominantly heterosexual, only incidentally homosexual; predominantly heterosexual, more than incidentally homosexual; equally heterosexual and

homosexual; predominantly homosexual, incidentally heterosexual; predominantly homosexual, more than incidentally heterosexual; and exclusively homosexual.

Kinsey’s description of sexual orientation as existing along a continuum was furthered by Dr. Fritz Klein, who also subscribed to a multi-dimensional notion of sexual orientation and attraction. However, unlike Kinsey, Klein’s model, operationalized by the Klein Sexual Orientation Grid, attends to the notion that sexuality is comprised of a variety of factors, including emotional, social, and lifestyle components, in addition to more traditional aspects of human sexuality, such as sexual attraction, sexual behavior, and sexual fantasies. Klein asserted that each of the aforementioned aspects of sexual orientation can change over time, conflicting with previously held notions of sexual orientation as stable and fixed, and are best evaluated by identifying past, present, and ideal descriptions of behavior. Like Kinsey’s model, Klein’s approach affords the option for those completing the grid to indicate a variety of interests, ranging from “other sex only” to “same sex only,” as well as orientations, ranging from “heterosexual only” to “homosexual only,” with a variety of response gradients in between exclusive orientations and identities. However, unlike Kinsey’s model, Klein’s model allows respondents the ability to differentiate between sexual behavior and lifestyle choices, thus allowing for identification of situations where respondents private sexual identity may not match their public (lifestyle) identity.

Prevalence of Nonheterosexuality

Current reported rates of homosexuality in the United States range between 2 and 4% of the total population [6]. However, methodologically, much research regarding the prevalence of homosexuality is plagued by the tendency to examine sexuality as a discrete variable, encompassing only heterosexuality, homosexuality, and bisexuality. As asserted by Diamond [7], as well as Savin-Williams and Reams [17], variations in sexual orientation are best examined by evaluating sexuality along a continuum, including same sex behavior, sexual attraction, romantic relationships, public lifestyle, emotional attraction, and fantasy. Furthermore, in accordance with Klein’s suggestion that past and future sexual orientation and behavior may deviate from present orientation, Savin-Williams and Reams also suggest that self-report of sexual orientation may not be fixed, reflecting degrees of self-awareness or active engagement in same or different sex behavior, and should be investigated across time.

Holistically, research conducted over the past 10 years suggests that when the definition of sexual orientation is

broadened to include domains outside of sexual behavior, such as emotion and fantasy, rates of homosexuality or bisexuality increase significantly from established base rates in the population. It has also been found that significantly more women than men self-identify as nonheterosexual [17]. Likewise, research indicates that report of sexual orientation among nonheterosexual populations typically varies over time, while report of sexual orientation among the majority of heterosexuals tends to remain stable [17]. Consequently, research identifying instability in reports of sexual orientation among nonheterosexuals suggests that sexual orientation may be a construct that behaviorally manifests differently over time (2007).

Determinants of Sexual Orientation

To date, no research definitively identifying the cause of sexual orientation differences has been published [2, 4]. Numerous hypotheses regarding the development of sexual orientation have been tested, yielding a variety of biologically based variables correlated with sexual orientation. Possible genetic determinants related to the x chromosome have been investigated [3, 4, 8, 9, 14, 15]; as well as hypotheses involving hormonal factors [10], and differences in brain anatomy, particularly in the hippocampus and hypothalamus [5, 16, 18]. Despite a long history of competing determinants of sexual orientation, sexual identity, and attraction is primarily believed to be biologically mediated. However, social and environmental factors may serve to influence the degree to which an individual fully espouses and expresses their sexual orientation.

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Sexual Prejudice

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Synonyms

Heterosexism; Homonegativity; Homophobia; Sexual stigma

Definition

Sexual prejudice encompasses all negative attitudes and assumptions directed toward an individual or group based on sexual orientation.

Description

Sexual prejudice occurs when an individual harbors negative attitudes about an individual or group based on sexual orientation [2–4]. The target of sexual prejudice can be of any sexual orientation (homosexual, bisexual, or heterosexual). However, as with other forms of prejudice, the groups that suffer most from sexual prejudice are those that have been ascribed marginal status by society.

As such, those whose sexual orientation is labeled as homosexual (i.e., gay, lesbian) or bisexual are most likely to be targets of sexual prejudice. The manifestation of sexual prejudice occurs in various ways, such as heterosexuals possessing negative attitudes about homosexual behavior or expressing negative attitudes towards individuals or groups of people who are homosexual or bisexual. Sexual prejudice can be expressed through verbal statements, non-verbal facial expressions, or actions ranging from avoidance to violence, for example.

Psychologist Gregory M. Herek, a scholar of sexual orientation-based prejudice and antigay violence, coined the term sexual prejudice [2]. The term was offered as a broader way of conceptualizing the negative attitudes and beliefs directed to individuals and groups based on sexual orientation. Further, use of the term sexual prejudice may serve as a more appropriate descriptor when identifying or studying antigay attitudes, which has previously been associated with the terms homophobia and heterosexism. More specifically, use of the term sexual prejudice may be more appropriate because its use does not define the origins of antigay attitudes or beliefs.

Relevance to Childhood Development

Children can be the targets and aggressors of sexual prejudice. Issues and experiences of sexual prejudice can arise when children become aware of sexual orientation differences between themselves and others. As children begin to gain an awareness of their sexual orientation, they begin to display behaviors that can be considered gender normative, gender neutral, or gender variant. Gender normative behavior is typically displayed by children whose sexual orientation is consistent with a heterosexual orientation. However, gender neutral or gender variant behavior is likely to be displayed by children who identify with a homosexual or bisexual orientation. As children begin to engage in behaviors that are not consistent with a heterosexual orientation, the potential for being the target of sexual prejudice increases.

Childhood is full of many developmental milestones. One of the milestones salient to identity development in children is that of first awareness of sexual orientation. The first awareness of one's homosexual or bisexual orientation is believed to occur between ages 9 and 11 [6]. The behavior of children is influenced in part by their awareness of their sexual orientation. Sexual prejudice is likely to be directed towards children who begin to engage in behavior that is influenced by their homosexual or bisexual orientation. Other developmental milestones that contribute to the likelihood of becoming the target of sexual prejudice include first same-sex encounter, first

self-label of gay, lesbian or bisexual, and first disclosure of sexual orientation. These milestones are reached at various ages; however, research indicates that they can all occur during the childhood and adolescent years.

Peer pressure is a psychological construct that contributes to the likelihood of a child becoming an aggressor of sexual prejudice [1]. As the child begins to notice the gender norms for his or her environment, they also begin to notice the children who are not behaving in what is considered a gender appropriate manner. Children can be greatly influenced by their peers to behave in many different ways. An environment that values and adheres to a rigid definition of gender appropriateness is likely to encourage children to adopt these same rigid values. As children begin to identify those children who are behaving in gender neutral or gender variant ways, they are likely to be influenced by their peers to think about and treat these children differently. In an environment where difference is not tolerated, the children have an increased potential for treating the children who behave in gender neutral or gender variant ways negatively.

Children who are the targets of sexual prejudice are likely to experience an array of negative experiences, which can impact their level of psychological wellbeing [5]. Children who are exposed to environments where they are made to feel inferior, deviant, and unwelcome can develop a low sense of self-worth and low self-esteem. These children can also develop higher rates of depression and feelings of hopelessness. Additionally, children who have experienced sexual prejudice can also develop a heightened level of sensitivity and awareness for their surroundings, which can increase their potential for developing anxiety disorders. All of these threats to a child's sense of wellbeing can lead to an increased susceptibility for suicidal ideation and suicidality.

In order to prevent sexual prejudice amongst children, attention needs to be placed on environmental factors [5]. Policy makers, educators, healthcare providers, and parents can take steps towards creating an environment that is more knowledgeable and accepting of gay, lesbian, and bisexual children. Since many of the peer interactions that create the potential for sexual prejudice in childhood occur in a school setting, educators can be influential in leading efforts to make schools a safer and more welcoming environment for gay, lesbian, and bisexual children. Children can be educated about sexual orientation differences. Support groups and peer ally groups can be created in the school to improve the awareness around sexual orientation issues. Mental health professionals can be made available to children who need support in processing their experiences of sexual prejudice. Parents can take

a leadership role by advocating that schools institute programs geared towards educating their children about sexual orientation issues. Preventing and dealing with sexual prejudice successfully requires the involvement of the entire community.

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Sexual Relationships

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Synonyms

Intimate relationships; Mate selection; Pair bonding; Sexual intimacy

Definition

A sexual relationship is a relationship between two people that includes sexual intimacy. The main forms of intimacy are physical and emotional, but sexual relationships do not have to include both of these components.

Description

There are different kinds of sexual relationships defined by the gender of the people involved: heterosexual relationships involve a male and a female, homosexual relationships involve two people of the same sex, and people identified as bisexual typically either engage in both kinds of relationships or have a sexual attraction to people of both sexes. Sexual activity between a child and either an older adolescent or adult, or exploitation of the child for sexual gratification, is child sexual abuse defined by

criminal and civil law. Age of consent for adolescents to have a sexual relationship according to law varies from country to country from age 12 to 20, although the modal age is 14 or 15 according to some sources, and subject to a variety of qualifications related to issues like permissible age differences, marital status, and what kind of activity is allowed, that again vary by country.

Relevance for Childhood Development

One third of 13 year-olds and two thirds of 18 year-olds self report having been in a romantic relationship in the past 18 months, and about half of North American high school students have experienced a sexual relationship that included intercourse. Sexual relationships are seen as a subset of romantic relationships as sex is a behavior that takes place within romantic relationships or is promised for the future, but sex can also take place outside of them [5, 7]. The evolutionary context of romantic relationships involves a combination of three behavioral systems that have been historically argued to be independent: attachment, caregiving, and sex [2, 6].

Sexual relationships have been studied for a variety of reasons in adolescence. One area of research involves risky sexual behavior [11]. Significant percentages of adolescents engage in risky sexual behavior, which includes having unprotected sex, sex while impaired, and involvement with multiple partners or at an early age. These kinds of behaviors are related to sexually transmitted diseases, involvement in unwanted sexual behavior, and teenage pregnancy. These negative outcomes have resulted in studies of motives for sexual behavior such as having sex to either gain social status or to maintain a relationship [10], as well as HIV and pregnancy prevention programs which target teenagers [8, 12]. These kinds of studies often identify populations of adolescents who tend to engage in risky sexual behavior, such as adolescents from low socioeconomic status, from single parent families, or from the inner cities. How adolescents feel invulnerable to normative risk factors (e.g., “it will not happen to me”) is also an issue. Another area of concern is when sexual relationships are coercive or exploitive, which compromises consent and appropriate motivational issues regarding the sexual relationship [3].

Another area of research examines how sexual and romantic relationships arise in adolescence. For example, relationship researchers have speculated that adolescent sexual relationships arise as an extension of peer relationships, and represent a further distancing of teens from their parents [1, 4]. Sexual and romantic partners can ultimately be a new secure base to turn to when distressed, whereas parents typically are used to meet those needs in

infancy and childhood. Mate selection is another focus so that how sexual partners are selected can be understood, and it is felt that secure children make relatively healthier choices in their sexual relationships.

A final area of interest is how teenagers can best be educated about sexual relationships, risk factors, and sexuality in general. There is a presumption that education can help teenagers make better decisions in their lives. Alternatives to education, such as the “Abstinence Only” teenage pregnancy prevention campaign in the United States in the 1990s, have not been effective as they do not include an educational component. There have even been ideologically driven objections to funding research on sexual relationships in adolescence out of concerns that such research would be counterproductive to efforts to discourage casual sex amongst teens [9].

Sexual relationships in adolescence ultimately are of interest to developmental psychologists, medical personnel with a focus on prevention and community-health, family-support workers, and educators [13].

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Sexual Stigma

► Sexual Prejudice

Sexual Victimization

► Self Identity: Sexual Abuse of Adolescents

► Sexual Abuse

Sexuality Education

► Sex-Education Programs

Shaken Baby Syndrome

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Synonyms

Battered child syndrome; Child abuse; Child maltreatment; Non-accidental trauma; Sexual abuse; Whiplash Shaken Infant Syndrome

Definition

Shaken baby syndrome (SBS) is a form of child abuse that occurs when an abuser violently shakes an infant or small child, creating a whiplash-type motion that causes acceleration-deceleration injuries.

Description

SBS, or also simply known as SBS, is becoming one of the leading issues of child maltreatment. In the United States alone, over 250 out of 1000 maltreated children die each year due to SBS. This number may be higher than reported as many cases have gone unrecorded since it was hard to properly label child abuse fatalities. Since SBS is a difficult syndrome to define, it further increases the difficulties

in determining the frequency of such cases. SBS, which causes head injuries by violently shaking an infant, is not a new type of child maltreatment. The first incomplete autopsy findings of such abuse was recorded in the year 1860, by Professor Ambrose Tardieu of the University of Paris. Although no shaking was specifically mentioned, he revealed that by investigating 32 cases of child abuse, some victims were “pulled all over the place” and had lesions at their arms and chest due to rough handling. However, it was only in the year 1946 that John Caffey coined the term Whiplash Shaken Infant Syndrome to describe 27 children with subdural hematoma, a type of brain injury, who had received whiplash shaking but had no history of trauma.

There are about 14 common signs and symptoms of SBS. Below is the list of them:

1. Apnea, an interruption in the regular rhythm of respiration
2. Bradycardia, having a heart rate of less than 60 beats per minute
3. Bradypnea, an abnormal slowness in breathing
4. Bulging fontanelle, swelling on the infant head's soft spot due to excess of fluid, blood and inflammation within the brain's substance
5. Coma, a state of unresponsiveness
6. Cyanosis, the lack of oxygen in the blood which causes the infant's lips and skin to turn into a bluish purple color
7. Eyes rolling back or staring
8. Hypothermia, abnormally low body temperature
9. Inconsolable irritability
10. Internal damage but with no external injuries
11. Lethargy, appearing sleepy, or hard to arouse
12. Seizures and status epilepticus
13. Tensing or drawing up limbs; and
14. Vomiting

Clinical characteristics of an infant with SBS may include retinal hemorrhage, subdural and/or subarachnoid hemorrhages but with no external trauma. Nevertheless, a diagnosis of SBS should not be made just by these symptoms alone, but, the combination of clinical history, diagnostic images and the abovementioned signs and symptoms.

The perpetrators of SBS can be anyone, but generally they are parents or caregivers of the child. Most often, shaking occurred not to injure the child but to control the child's behavior. There are many characteristics of SBS perpetrators, but only three will be noted here. First, SBS perpetrators were often abused as children too. Since these people grew up in a negative environment, they may

believe that corporal punishment is justified, and may not see the wrong in shaking a crying child to silence him or her. Second, caregivers with psychiatric disorders show an increased probability of being a perpetrator of SBS. The psychopathology impacts the relationship between the caregiver and the child, and the caregiver has a lower ability to deal with the stress of raising a child. Third, lack of social support and social isolation has been highlighted as one of the factors that increases the risk of infant shaking. This social isolation by the caregivers increases their frustration and limits their sources to proper caregiving and child development. Abusive behaviors are found to occur especially during periods of overwhelming stress.

Relevance to Childhood Development

This syndrome is a serious form of child maltreatment because of the severe consequences it produces to the shaken infant. Vigorously shaken infants are subject to possible brain injuries. A child who experienced a minimal aftereffect of the shaking often develops attention issues and may be easily distracted. In addition, this child may develop emotional problems and attachment disorder. Normally, the conditions above happen to shaken children who were not discovered or even diagnosed. However, in severe cases, the shaken child might end up having balance problems, blindness, cerebral palsy, deafness/hearing problem, and even death. Balance problems are related to an injury to either the basal ganglia, cerebellum or the inner ear. Retinal hemorrhaging may develop as a result of SBS and this may lead to partial or total blindness while cerebral palsy impairs the child's motor skills. Since a shaken child may suffer damages to the eighth cranial nerve, bones of the inner ears and the cochlea, the child is susceptible to hearing problems or even deafness. Death often occurs due to uncontrolled increase of intracranial pressure. This is a result of injuries to the cerebral edema or hemorrhage. Shaken children under 6 months of age are exposed to a higher risk of dying.

Since SBS also leads to motor skills impairment, shaken children are also left with poor oral motor function. They are unable to chew or swallow, and might also experience gastroesophageal reflux, whereby food from their stomach is brought back into the esophagus. A SBS child might also have hydrocephalus, the enlargement of the brain due to excessive build up of fluid in and around the ventricles of the cranial space. Other complications due to traumatic brain injuries include hypersensitivity, learning disabilities, and mental retardation. Shaking could slow down the brain's rate of growth, causing the child to have microcephaly, which is defined as possessing an abnormally smaller head than the normal population.

Damage to the spinal cord can result in paralysis to the child while with severe brain injuries, the child might be left in a persistent vegetative state.

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Shakow, David

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Life Dates

1901–1981

Educational Information

Born in New York City, David Shakow attended Harvard University, where he earned his bachelor's and master's degrees in science. He began working toward his doctorate in psychology, but accepted a position at Worcester State Hospital in 1932 to support his family. In 1949, he accepted a position as professor in the psychiatry department at the University of Illinois Medical School. Two years later, he accepted a joint position to also serve as professor of psychology at the University of Chicago. In 1954, he left both of these positions to work at the National Institutes of Mental Health (NIMH). Shakow served as the first head of the Laboratory of Psychology in NIMH's Intramural Research Program. In 1966 he retired from his position, but continued as a senior research psychologist [2].

Accomplishments

At Worcester State Hospital, Shakow began his research into schizophrenia. His research helped to establish basic facts about schizophrenia and contributed to the research on the mental deterioration that accompanies the progress of schizophrenia. Additionally, Shakow helped emphasize the need to treat schizophrenics humanely [1].

During his work at NIMH, Shakow was awarded the Distinguished Scientific Contribution Award and the Distinguished Professional Contribution Award of the American Psychological Association [2].

Contribution

Shakow's dissertation (1946), *The Nature of Deterioration in Schizophrenia*, is recognized as a classic study of the disease. Shakow developed one of the nation's first clinical psychology internship programs [2].

Shakow also chaired the development of the [Scientist-Practitioner Model](#) of graduate training for clinical psychology, which was set forth at the famous [Boulder Conference](#) of 1949. Finally, Shakow's research at NIMH contributed to the areas of schizophrenia, perception, aging, childhood development, and personality [2].

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Shame

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Definition

A self-conscious emotion, evoked in situations of failing to achieve goals of personal importance and attributing the outcome to internal, uncontrollable causes such as lack of ability or intelligence.

Description

Shame is characterized as a highly intense self-conscious emotion that usually occurs as a result of failure of personal importance, such as living up to expectations or attaining personal goals and standards. It is evoked in situations in which failure has been attributed to a stable global aspect of the self (i.e., personality characteristics, ability), exemplified by the statement “I’m a stupid person.” The intensity of shame is particularly strong when an individual fails an easy task. Shame is associated with feelings of helplessness, sadness, and depression; it involves a negative evaluation of the entire self and there is a great concern about the appearance of the self in the eyes of others [6, 10].

The experience of shame is accompanied by pronounced behavioral reactions such as lowering the head

and eyes, not maintaining eye contact, withdrawing from interaction, and diverting others' attention from the painful event. Physiological reactions including blushing, having difficulty breathing, and increased perspiration and heart rate. Psychological reactions include feelings of inferiority, humiliation, awkwardness, lack of confidence, loss of status, and loss of control [3, 8].

Shame could have an adaptive function as long as the recognized discrepancies between actual behavior and the ideal self serve as a motivator for change and improvement. Recurring shame, however, can result in generalized shame or a disposition for shame and as such can have devastating and de-motivating effects. Excessive feelings of helplessness, worthlessness, and incompetence across a variety of situations have been labeled a "shame-prone" style.

Relevance to Childhood Development

Shame is different from basic emotions such as sadness, as it involves a more elaborate cognitive process at the center of which is the self. Shame develops as the growing child acquires understanding of self-identity, social norms, and conventions [4, 6, 8]. Thus, shame is a higher-order, self-evaluative emotion, often considered a moral emotion as it reflects responsibility to self and others. The very first prerequisite condition for the genesis and development of shame is cognition. In order to be able to experience this emotion, children must be cognitively capable of mentally representing standards for behavior, of judging their own behavior or performance against these standards, and, in situations of failure, of reflecting upon the possible causes of their behavior which have prevented them from living up to their expectations [1, 6]. In addition to natural maturational processes in cognition, shame develops out of children's socialization experiences in the nuclear family. More specifically, shame develops as a result of parents' or significant others' use of evaluative feedback. Evaluative feedback, regardless of its valence (positive or negative), can foster the development of shame in several ways. Initially, the feedback serves to draw the child's attention to the social meaning associated with particular behavioral outcomes. Parents' frequent evaluative feedback leads to the child's internalization of parental values, norms, and standards for acceptable behavior. The perception of the social value of the outcome facilitates in turn the child's self-evaluation against the internalized standards, which are deemed to be at the center of the emotion of shame [1, 5, 6].

Shame takes different forms at different ages. Mascolo and Fischer [7] have delineated the sequence in the development of shame. The 7–9 months old infant reacts

with distress when he engages in action which results in a failure to achieve a particular outcome. Between 11 and 13 months, the child's distress produced from failing a complex action is accompanied by an appraisal of other people's reactions. Toward the end of the second year of life, the child begins to attribute the negative outcomes of goal oriented behavior to the self as a cause of it. In the third year of life, the self, as a cause of the outcome, is labeled bad or poor. Preschoolers begin to judge their inadequate performance in an important area in reference to other people's performance in it. Also, they are capable of comparing their performance across different instances of the same situation and begin to generalize that they are lacking an important trait, which in turn is blamed for the failure. Between the ages of 6 and 8, children begin to judge their performance as poorer than that of other children and adults in several areas and become likely to infer that they do not possess the desirable trait to the same extent as other people do. Younger children are predominantly fearful of ridicule and embarrassment. Children younger than eight tend to explain their emotions of shame by the use of an external frame of reference, exemplified in statements such as "Mom would be ashamed of me if I did something wrong [3]." Elementary school children (10–12 years of age) become cognitively capable of analyzing the courses of ineffective actions and shame is more likely to be associated with generalized thoughts of incompetence. For example, a child can judge him/herself as lacking an athletic ability and being a poorer student comparative to other children, from which he/she concludes that in general he/she is less competent. Yet, in the adolescent years, shame could take on another manifestation: the adolescent could feel ashamed because of a characteristic or behavior of another person or group of people with identity related to theirs.

It has been argued that excessive shame reactions might originate from punitive parental socialization practices such as power assertion and love withdrawal [2, 4, 9]; that is, children whose parents rely on discipline techniques such as punishment or threat of punishment are much more likely to manifest maladaptive shame when they encounter a situation of failure [2, 9]. Moderate positive relationships have been found between maternal negative evaluations of performance and a child's expression of shame in situations of failure. In addition, it has been noted that the pattern of relationship between shame and feedback is consistent across genders. Thus, frequently communicated disappointment and criticism by parents may not only foster a child's negative self-evaluations but they also predispose that child to recurrent shame experiences. Research has also established that

girls tend to be more shame prone than boys and that mothers tend to offer more positive feedback to boys than to girls [2, 10].

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Shaping

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Definition

Shaping is a procedure by which new responses are formed using differential reinforcement of successive approximations to a target behavior.

Description

Components of shaping include beginning with a response that resembles the target behavior, gradually changing the response requirement, and differentially reinforcing the successive approximations to, or changes towards, the final target behavior [1]. For example, shaping can be used to teach an infant to speak a new word. Using the word “ready” as the target behavior, running with the infant can be done contingent on their approximating the word “ready.” First, the requirement might be saying “rrr.” The next approximation might be “red” and the final “ready.” Once the infant has mastered one response, reinforcement is withheld until the infant engages in the next approximated response. When using shaping, one needs to be mindful of the size of the change in response requirement as too large a change can result in a breakdown of the response. Shaping is often used in teaching new behaviors, sometimes within the context of behavioral intervention programs.

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Shared Attention

► Joint Attention

Shared Focus

► Joint Attention

Shifting Attention

► Working Memory

Short-Term Memory

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Synonyms

Immediate memory; Working memory

Definition

Short-term memory (STM) is conceived of as an auditory based, limited-capacity part of the human memory. It is generally agreed to be involved with the encoding to and recall from the long-term stored information. Unless information is rehearsed, information in the STM usually lasts seconds to 1–2 min, although some researchers suggest retention periods as high as 1 h–2 days. At the end of this period information either is transferred to long-term memory or is lost. Miller [18] in a study showed what has come to be known as “7 + or – 2,” which related to the limited capacity of items that could be held in the normal STM (e.g., 5–9). In work by Dean and colleagues [5], the processing of the STM was shown to be associated with an auditory base while long-term memory had a longer duration and processed information conceptually. STM has been proposed as a stage that information must pass through to enter long-term memory storage, and it is into STM that long-term memories are retrieved. STM only requires material be stored and reproduced immediately without requiring that the material be transformed or manipulated in any way.

Description

Through sensory input, individuals register and hold large amounts of information briefly in sensory memory (or sensory register). If the registered information is not further processed by STM, it will decay quickly. Thus, the sensory register is a filtering device while the STM is used for processing. Long-term memory represents, with rehearsal, a relatively permanent memory storage. STM is proposed as a stage that information must pass through to enter long-term memory storage, and it is into STM that long-term memories are retrieved. Because STM is a limited-capacity system, information within STM must be transferred to long-term memory as new information replaces it; otherwise it will decay.

STM is sometimes referred to as and used interchangeably with working memory in CHC theory. For many the definition of STM does not include “the requirement for active manipulation of information,” embedded in the definition of working memory. Further, STM in the past was defined as retention of information over brief periods, and working memory was a limited-capacity memory system that provided temporal storage to manipulate information for complex cognitive tasks such as learning and reasoning. In other words, working memory is a cognitive process involving both retaining information and performing mental operations on that information prior to entry to long-term memory. Working memory contains information that can be acted on and processed, not merely the result of rehearsal. Additionally, working

memory ensures that information will be available until it can be effectively encoded into long-term memory. Information placed in working memory may come from sensory memory, STM, or long-term memory [17].

Historically, Atkinson and Shiffrin [1] posited a three-part model of memory (sensory memory, STM and long-term memory) where the central feature was STM. According to their model short-term memories are fragile, contain only a small amount of information that is actively being used and are lost quickly (within 30 s or so) unless they are somehow repeated. A more current model involving STM is described by Gathercole and Alloway [8]. Theirs is a working memory model that involves three components: verbal short term memory, visuo-spatial short term memory and a central executive that serves an attentional and integrative role. In their model, verbal short term memory provides for the temporary storage or retention of sound patterns and language based materials that are mediated by the left hemisphere. The visuo-spatial short term memory component is mediated by the right hemisphere and involved in recalling shape, orientation and visual features of objects, and patterns of movement. Currently, research indicates that STM passively stores information, that it is domain specific (e.g., verbal or visual) and that it can operate independently of long-term memory and working memory [12].

Neuroanatomy of Memory/Retention of Information

Studies of healthy people and patients with amnesia have revealed that memory does not consist of a single undivided whole but rather a variety of different structures, each mediated by different component processes which in turn are subserved by different neural mechanisms. Evidence from sources of functional imaging techniques and studies of patients with memory impairments and animals indicates that the medial temporal lobe (primarily the hippocampus and secondarily the amygdala) and the midline diencephalon (the dorsomedial nucleus of the thalamus) are essential brain structures for normal learning and retention. These structures permit the storage of information until consolidation is complete. Neuropsychological research indicates that left parietal-temporal lobe dysfunction disturbs short-term (and working) memory. Lesions in this area impair the ability to recall a string of digits. Left sided lesions result in verbal impairments, and right sided lesions result in STM impairments for spatial location [11].

Relevance to Childhood Development

Memory complaints are among the most frequent patient complaints in clinical neuropsychology, and STM deficits

are a common feature of many childhood disorders, including traumatic or acquired brain injury, congenital brain injury (anoxia), seizure disorders, attention disorders, autism, endocrine disorders, genetic disorders such as Prader Willi Syndrome, Turner Syndrome, XXY Syndrome, and numerous neurodevelopmental disorders such as metabolic disorders. Memory function takes precedence over acquiring new skills and directly impacts the retention of information and skills. Therefore, assessing the performance of the various aspects in the memory system is imperative in detecting and identifying possible memory disorders. Most standardized batteries of intellectual functioning in children and adults have incorporated tasks of STM. Children do not use rehearsal strategies until about age 8 or 9, so young children's STM capacity is quite limited. Most children reach adult capacities about age 10–12. Additionally, at about age 8, children develop a strong preference for using verbal STM skills when possible, even to retain visual-spatial STM stimuli because verbal STM is more accurate and efficient. The three most widely used memory batteries for children are the *Wide Range Assessment of Memory and Learning-II* (WRAML-II), the *Test of Memory and Learning-II* (TOMAL II), and the *Children's Memory Scale* (CMS).

Due to variations in etiology, age of onset, and resulting impairments of memory systems, the prognosis for improvement of memory deficits is not easily determined. There is some evidence that specific rehabilitation strategies result in improvement of memory performance. The primary focus of intervention has been on environmental compensation including mnemonic strategies, rehearsal and repetition strategies, and multimodal cueing, and the use of tools such as planners, calendars, or charts. There is considerable need for further research examining the efficacy of specific intervention strategies on various memory functions in children and adolescents.

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Shy Children

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Synonyms

Bashfulness; Behavioral inhibition; Reticence; Social withdrawal; Timidity

Definition

Shyness in children is a personality trait and a form of social withdrawal. Shy children exhibit wariness and anxiety when presented with novel social encounters and they show self-preoccupation when they perceive social evaluation [7, 18]. Shyness can vary in intensity from mild social awkwardness to extreme [▶social phobia](#) [11]. Manifestations of shyness occur at the physiological, behavioral, and cognitive levels. The origins of shyness are multiply determined, and they result from a complex interplay between biology, genes, and environment [19].

Description

The biological origins of shyness appear to be linked to dysregulation of the fear system [18]. Children who become distressed and subdued when presented with novel stimuli are thought to have a lower threshold for arousal in the forebrain area, especially in the central nucleus of the amygdala. The amygdala plays an important role in fear responses. Shy children show electroencephalogram (EEG) response patterns indicative of greater right frontal brain activity. Other biological features found in shy children are elevated morning basal cortisol levels, increased heart rate acceleration in response to mild stress, and exaggerated startle responses [7].

There is a strong conceptual overlap between shyness and behavioral inhibition, a broader term used to describe a biologically based temperament trait [7]. Behaviorally inhibited children exhibit caution and wariness in unfamiliar social and nonsocial situations, whereas uninhibited children are likely to be bold and sociable. Differences between these inhibited and uninhibited children are thought to reflect variation in excitability of the amygdala and its projections to the ventral striatum, hypothalamus, cingulate, central gray matter, and medulla [13]. It is estimated that approximately 10–15% of children may be described as behaviorally inhibited.

Several other interesting biological factors are linked to shyness, such as blue eye color, blond hair, pale skin, and allergies (especially hay fever; [11]). In addition, prenatal factors also have an impact. It has been found that women who are exposed to short day length during pregnancy (especially during the midpoint of pregnancy) are more likely to have shy children. The hormone melatonin has been implicated in the link between day length during pregnancy and shyness. During the winter months when there are fewer daylight hours, the body produces higher levels of melatonin. This melatonin passes through the placenta to the developing fetal brain, where it may contribute to the development of the highly reactive temperament of shy children [9].

Shyness also shows evidence of genetic links and is considered to be the personality trait with the strongest genetic component. Shy children are likely to have at least one shy parent, or they may have other shy family members. It is speculated that genes that code for serotonin transportation likely play an important role in regulation of some components of the fear system associated with shyness. Serotonin is a major neurotransmitter that has been linked to anxiety and withdrawal [20]. It has been suggested that some shy individuals have a genetic polymorphism that results in reduced efficiency of the transportation of serotonin. Interestingly, it has been found that children who exhibit higher levels of shyness or who have one or two copies of the short allele of the serotonin transporter promoter gene show some impairment in their ability to read some facial emotions. Specifically these children have a hard time deciphering neutral and angry faces [2].

While considerable research has focused on the links between shyness and activation of the fear response region of the brain (i.e., the amygdala), less research has considered the extent to which shy individuals may show greater brain activation in areas that govern more positive emotions. Recent research found that when shy, behaviorally inhibited adolescents played games that involved winning or losing money, they showed greater activity in the striatum, the brain region associated with reward, than did adolescents who were behaviorally non-inhibited [10]. The results of this research suggest that shy children may have a greater sensitivity to a variety of stimuli, not just frightening stimuli, but rewarding stimuli, as well.

Behaviorally, among younger children shyness is manifested primarily as fear and nervousness in encounters with new people and new situations [5]. For older children, embarrassment and self-consciousness are manifestations of shyness. In free play situations with their peers, shy children tend to engage in onlooker behaviors or to remain unoccupied in both novel and familiar settings [16]. Shy children tend to withdraw from social interactions and they rarely initiate contact with potential playmates. Shy individuals tend to minimize conversation and avoid firm eye contact [14].

Self-defeating thoughts are a cognitive manifestation of shyness. These self-defeating thoughts are likely due to a fear of rejection [14]. It has been suggested that shy children may be caught in an approach-avoidance conflict. They have a desire to interact with others, but they are hesitant to do so because of a fear of adverse outcomes such as negative evaluation [14]. Shy individuals are likely to have negative biases in their self concept, such as feeling inadequate or unattractive [11].

Not all shyness is evident during infancy, and so it is important to make the distinction between early and later-developing shyness. Early emerging shyness, which typically appears during the first year of life, is described as fearful shyness. This type of shyness shows a strong genetic component, and is associated with the temperamental characteristics of wariness and emotionality. Children who show behavioral inhibition in novel social situations may be described as exhibiting fearful shyness. Beginning in middle childhood, self-conscious shyness may develop, and it is characterized by inhibition due to social-evaluative concerns [15]. It first appears around age 4 or 5, and it coincides with the child's development of a cognitive sense of self. Self-conscious shyness increases in intensity around age 8 as children begin to engage in more social comparison with their peers. Self-conscious shyness reaches a peak between the ages of 14 and 17, as the adolescent deals with imaginary audience and identity issues.

While the origins of shyness in some individuals are evident in manifestations of biologically-based behavioral inhibition in infancy, not all behaviorally inhibited infants and toddlers go on to develop shyness in childhood [14]. This suggests that biology and genetics alone are not the sole contributors to shyness. Indeed, most researchers agree that an interaction between biological and environmental factors contributes to the development of shyness [19]. Consequently, in addition to the biological factors already discussed, it is important to consider environmental factors that may contribute to shyness.

Overprotective parenting has been linked to childhood shyness [6]. Overprotective parents tend to restrict and direct their children's activities, and they discourage independence. As a result, an already temperamentally shy child may not develop important coping strategies, which may further reinforce their social wariness and shyness. Other factors within families that may contribute to shyness are frequent parental criticism, high parental control with little warmth, and chaotic family interactions [12]. Distant and rejecting parents tend to have shy and socially withdrawn children [19].

Peer relationships can also contribute to shyness. Shy and socially withdrawn behavior is increasingly perceived negatively by peers as children age. Shy and socially withdrawn children generally do not experience peer rejection in early childhood, but by mid-to-late childhood and early adolescence, many shy, socially withdrawn children experience peer rejection and may become the targets of peer victimization [17]. Peer rejection during childhood and adolescence and feelings of incompetence in comparison to peers can further exacerbate shyness.

Childhood shyness is associated with a number of negative outcomes. From middle childhood through adolescence, shyness is increasingly related to internalizing problems such as loneliness, depression, and social anxiety. Shy children may exhibit deficits in social competence and self-esteem, and they may experience peer rejection [5]. Additionally, early childhood shyness is a risk factor for later developing anxiety disorders [6], especially social phobia [16]. The negative trajectory worsens over time. That is, in middle and late childhood, social withdrawal increasingly is associated with peer rejection, loneliness, depressive symptoms, and negative self views [16].

Some research has examined long-term outcomes associated with childhood shyness through follow-up studies into the adulthood years. Long-term research on a 1920s birth cohort found that shy males married, established careers, and had children later than non-shy males. In contrast, shy women were more likely than their non-shy peers to follow a conventional pattern of marriage, childbearing, and homemaking [4]. Childhood shyness was not associated with pathological or extreme outcomes for either men or women. Similarly, a more recent long-term study found that childhood inhibition was associated with a delay in establishing a first stable career and romantic partnership, and finding a first full-time job at age 23 for both men and women. With regard to emotional consequences of inhibition, it is notable that only the most extremely inhibited showed internalizing problems at age 23 [1]. The researchers concluded that inhibited children grow up into reserved, cautious adults with minimal evidence of internalizing problems.

While it is important to acknowledge the challenges and risks associated with shyness, it is equally important to recognize that not all shy children experience negative outcomes [5]. Interestingly, language ability can serve as a protective factor for shy children. Verbal IQ, expressive vocabulary, and pragmatic language ability all facilitate social interactions for shy children, reducing their risk for negative outcomes [5].

Another factor that appears to make a difference in the outcomes for shy children is gender. Whereas shyness in girls is more likely to be rewarded and accepted by parents, being shy is especially problematic for boys in school. Shy boys in preschool have more behavior problems and are more likely to experience peer exclusion than are shy girls [5]. Throughout childhood and adolescence, shy boys continue to have more adjustment difficulties than girls do, such as more loneliness, poorer social skills, and lower self-esteem [5]. It has been suggested that cultural values play a role here, where there is greater social acceptance of shyness for girls than for boys in Western culture.

Interestingly, the role of culture can also serve to be protective factor for the shy individual. Although shyness is generally viewed as an undesirable personality characteristic in the United States, that is not the case in all cultures. For example, in the People's Republic of China, shy, reserved behavior is encouraged and accepted by mothers, teachers, and peers, and it is linked to social competence, peer acceptance, and academic success [16].

Just as family and peer factors can contribute to the risks of shyness, they, too, can serve as protective factors. Specifically, the maternal warmth, sensitivity, and supportiveness characteristic of an authoritative parenting style can help shy children develop social skills [6]. Additionally, having a high quality friendship is protective [5]. Such friendships may help provide social confidence to the child, serving as a buffer against negative emotional consequences of shyness [14]. Furthermore, children who have a closer relationship with their teacher are less likely to experience the negative outcomes associated with shyness, such as peer exclusion and rejection [5].

It is also important to recognize the positive characteristics associated with shyness. Focusing only on the problems associated with shyness can result in the view that shyness is necessarily detrimental. News stories about the use of selective serotonin re-uptake inhibitors (SSRI) or even oxytocin nasal sprays to treat shyness may communicate the message that shyness is pathological and medication is a quick fix and sure cure [20].

A more optimistic view acknowledges that some shyness attributes may be advantageous. For example, adults and children who are shy are often non-impulsive and good listeners [20]. Shy individuals are often high in empathy and sensitivity, which promotes compassion for others [11]. As noted earlier, shy children appear to exhibit increased activity in the reward system of the brain. It is quite possible, then, that shy children experience positive emotions and rewards more strongly, which may motivate the shy child to succeed.

Several intervention approaches are available to help shy children. For example, peer pairing gives withdrawn children the opportunity to participate in activities with a non-withdrawn peer, so that the more sociable peer serves as a role model, provides positive reinforcement, and increases confidence [15]. Social skills training also has been used to intervene with shy children. In social skills training, children learn and practice skills that help facilitate social interactions. Social skills training has been found to have moderate effects in increasing social interactions for shy children [15].

Another way to help shy children is to provide them with opportunities for social interaction that are related to

their skills and interests. Participating in these activities expands shy children's social interactions, which in turn may enhance their communication skills and reduce social awkwardness. Activities such as group sports, acting, and dancing classes in a supportive environment can be helpful to shy children [12]. Research has found that shy children who participated in sports showed a significant decrease in social anxiety over the span of 1 year [8]. It is important to target activity participation to the child's skills and interests to maximize the likelihood that the child will have experiences of success [14].

Ultimately, parents need to adapt their parenting behavior to fit the temperamental needs of their shy child. By being patient, gradually introducing the child to new experiences, and recognizing which social experiences are a good fit for the child parents can help their shy child to achieve positive developmental outcomes.

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Sibling Competition

► Sibling Rivalry

Sibling Jealousy

► Sibling Rivalry

Sibling Order

► Birth Order

Sibling Relationships

► Relationships

Sibling Rivalry

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Synonyms

Cain complex; Jealousy complex; Sibling competition; Sibling jealousy

Definition

Sibling rivalry is a type of competition among brothers and sisters, for the love, affection, and attention of one or both parents or for other recognition or gain.

Description

Sibling rivalry often starts right after the birth of the second child, and usually continues throughout childhood and can be very frustrating and stressful to parents. It has been found that feelings of rivalry diminish in adulthood [7].

Sibling rivalry is manifested in the form of verbal or physical aggression, frustration, persistent demands for attention, or as a regressive phenomenon. Older siblings may feel lonely when the younger sibling is born and may indirectly suggest that they do not like the existence of their newborn brother or sister. Others may display frustration or demand attention when the newborn is picked up or provided more attention. Some others may hit, kick, and punch their younger sibling. Regressive behaviors such as bedwetting, thumb sucking, refusal to go to bed, insisting to be carried, and talking like babies occurs very commonly [6]. Conversely, younger siblings' feelings of jealousy may manifest as a result of the older sibling starting school before them, parents allowing the older sibling to stay up late, and having to use the older sibling's clothes and books [6].

Relevance to Childhood Development

Theories Explaining Sibling Rivalry

Different processes in sibling relationships have been identified that may explain the effect that siblings have on each other. Each child competes to define himself/herself as an individual, a process that has been described as sibling identification [1]. As they discover who they are, they try to find their own talents, activities, and interests. On the other hand, sibling deidentification has been proposed as a process whereby siblings try to distinguish themselves from their brothers and sisters and develop different

qualities and interests in an effort to avoid direct competition for resources and establish their own role and identity within the family [10]. Psychologists who support the psychoanalytic viewpoint propose that deidentification is a defense against sibling rivalry, a Cain complex [9], just as identification is regarded as a defense against the Oedipus complex.

Austrian physician Alfred Adler theorized that when a young child, initially the focus of attention, is replaced in the mother's affections by a newly arrived infant, then "dethronement" occurs. Thus Adler conceived sibling rivalry as competition between brothers or sisters for parental approval.

Factors Leading to Sibling Rivalry

Children's developmental stages affect how well they can share parent attention and get along with their siblings. Toddlers may be at an age when they are learning to assert themselves and may not like to share their toys with anyone. They may react aggressively if their brother or sister picks up their toy. In middle childhood, children often become the "fairness police," so they might not understand why siblings of other ages are treated differently. Teenagers, on the other hand, are developing a sense of individuality and independence, and might resent helping with household responsibilities, taking care of younger siblings, or even having to spend time together. All of these differences can influence the way children interact with one another.

Additionally, the emergence of sibling rivalry may depend on the temperament of the child. Specifically, young children's angry temperament can significantly predict how these young children express their jealousy feelings [11]. Furthermore, the age of the child may also determine how the child may cope with the feelings of sibling jealousy. Volling et al. [11] found that older children's understanding of emotional affect significantly predicted their behavior towards their younger sibling. Thus sibling rivalry may be less common among children over the age of 8 years. They may be better at perspective taking and thus understand why their parents are providing more attention to their younger sibling. Sibling rivalry is more common in children between the ages of 2 and 4 years [3]. Additionally, the smaller the age difference between children, the more likely sibling rivalry will occur [5].

Research has found that differential treatment (i.e., less warmth and affection, more coercion by parents) of one sibling by parents leads a child to act in an aggressive, unaffectionate and avoidant manner towards their sibling [4]. This differential treatment may also be seen in families with children with special needs. Specifically, since the

child with special needs may need more attention, the other sibling may feel isolated and may develop feelings of rivalry.

Clinical Significance of Sibling Rivalry

Patterson [8] considers sibling relationships as a "training ground" for childhood aggression. Sibling rivalry, if handled properly, can help children learn social and cognitive skills important for child development [6]. Cole, Zahn-Waxler, and Smith [2] suggested that those children who interact with a jealous sibling, who is more likely to instigate conflict, may be at a high risk for development of emotional regulation disorders.

Management of Sibling Rivalry

Sibling rivalry may be minimized by preparing the child for the new baby. Involving the child in the preparations for the new baby may help him/her feel important. Providing verbal reassurance to the child that the parents will continue to love him/her after the baby arrives will address any insecurity that the child may experience. Verbal praise for caring for the baby will help the child feel like a team member in caring for the new-born child. Additionally, parents should emphasize the role of each individual within the family. Parents should avoid comparison with siblings about their intelligence, physical appearance, and achievements. Above all, parents themselves should model problem-solving skills during conflict resolution within the marital as well as family relationships [11].

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Sickle Beta-Plus Thalassemia

► Sickle Cell Disease

Sickle Beta-Zero Thalassemia

► Sickle Cell Disease

Sickle Cell Anemia (SS)

► Sickle Cell Disease

Sickle Cell Disease

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Synonyms

Sickle beta-plus thalassemia; Sickle beta-zero thalassemia; Sickle cell anemia (SS); Sickle-hemoglobin C disease (SC)

Definition

Sickle Cell Disease is a genetic blood disease involving the red blood cells that produce the hemoglobins that are sickle shaped and can cause problems throughout the body. The symptoms of the disease may cause death or serious damage to vital organs.

Description

Hemoglobin carries oxygen from the lungs into the body and transports it to the organs, muscles, and tissues.

Normal hemoglobin is called HbA. Hemoglobin S are red blood cells that are sickle-shaped that must pass through the blood vessels and may block the passageways and damage the tissues.

Relevance to Childhood Development

Children who have Sickle Cell disease need to make sure that the school understands the problems that they may have. Some children may have bruises on their bodies that have been mistaken for abuse. The most important consideration is for the child to be adequately hydrated and not over fatigued. Understanding the disease and watching for signs that may cause painful episodes is important. Children with Sickle Cell may experience severe pain in any part of the body due to sickling of the cells. There have been cases of people with this disease suffering heat exhaustion, dehydration, leg pain, joint pain, stomach pain, strokes, splenic infarction, stroke, and heart attacks. Diet is important and parents need to make sure the child is eating a well balanced diet. The child's immune system may be reduced which may cause more childhood illnesses. Children may also have swelling of the hands and feet.

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Sickle Cell Trait

► Sickle Trait

Sickle Trait

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Synonyms

Sickle cell trait

Definition

Sickle cell trait or sickle trait is also known as hemoglobin genotype AS. Hemoglobin is the oxygen carrying protein in red blood cells. It carries oxygen from the lungs into the body and transports it to the organs, muscles, and tissues. Normal hemoglobin is called HbA. If one parent has a mutation of their hemoglobin gene and passes it on, the child will carry the defective gene, in this case, the HbS gene. In sickle trait, the individual has both HbA and HbS in about equal amounts in all red blood cells. These cells have the potential to change from round to sickle shaped red blood cells under certain conditions although they usually do not [1].

Description

Sickle cell trait needs to be understood because of the potential problems that may exist in some individuals with this genetic disorder. Most persons with sickle trait have few, if any, problems from it and are often unaware of having any abnormality. However, some persons with sickle cell trait may experience severe pain in any part of the body due to sickling of the cells. There have been rare cases of people with this disease suffering heat exhaustion, dehydration, leg pain, strokes, and splenic infarction. Some women with the trait have increased urinary infections. Hyphema or bleeding in the anterior chamber of the eye between the iris and the cornea is another problem associated with sickle cell trait. Patients with sickle cell trait have a higher incidence of gross hematuria (blood in the urine) than patients with sickle cell disease. Gross hematuria occurs from bleeding directly beneath the renal pelvic epithelium or as a consequence of papillary necrosis. Renal medullary carcinoma is a rare type of cancer that principally affects patients with sickle cell trait. A possible lethal effect of sickle cell trait is unexpected exercise-related death. A person with the trait should use caution when exercising to the limit of endurance and should take care by warming up slowly when playing sports or engaging in rigorous activity and making sure not to become overheated [2].

Relevance to Childhood Development

Although sickle cell trait originated in Africa, it has been found throughout the world among people of Greek, Italian, Indian, Hispanic and occasionally Caucasian origin. The majority of those with sickle cell trait are of African or Hispanic descent. Those from Caucasian origins tend to have more problems associated with this genetic disorder. Most children in the US are being tested at birth for this condition [3]. When a child is found to have the trait, the parent needs to be aware that most of the time children who have the trait will not have any problems, but the child might feel more pain than children without the trait [4]. Also hydration is important when the child is involved in any kind of activity [2].

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Sickle-Hemoglobin C Disease (SC)

► Sickle Cell Disease

Sigma Score

► Standard Scores

Signal

► Gestures

Simian Crease

► Single transverse palmer crease

Simian Line

- ▶ Single transverse palmer crease

Similar Scales Include: Hamilton Rating Scale for Depression (HRSD)

- ▶ Beck Depression Inventory

Simplified Habit Reversal

- ▶ Habit Reversal

Simultaneous Bilingualism

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Definition

The development of fluency in two languages at the same time.

Description

Simultaneous bilingualism is typically the result of prolonged exposure to two languages from birth. This may result, for example, from one parent or primary caregiver speaking to a child in one language and another parent or primary caregiver speaking to the child in another language. In contrast, sequential or consecutive bilingualism is the development of fluency in a second language after fluency in a first language has been reached.

Research has shown that very young children who have developed simultaneous bilingualism are able to discriminate and switch between the two languages as appropriate to the social context. Researchers have also found that having two well developed languages is associated with increased metalinguistic awareness, communicative sensitivity, and divergent thinking skills [1].

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Single Palmer Crease

- ▶ Single Transverse Palmer Crease

Single Parent Families

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Synonyms

Father only families; Lone/single parent/caregiver families; Mother only families

Definition

Single parent families are comprised of a parent/caregiver and one or more dependent children without the presence and support of a spouse or adult partner who is sharing the responsibility of parenting.

Description

Overview

During the past several decades, the number of “traditional” two-parent families has decreased while the number of single parent families has increased. For example, while only about 11% of children lived in single parent families in 1970, census data from 2000 indicate that 28% of children lived in single parent families. More recently, however, these increases have leveled off with recent rates having declined from 29% in 1997 to a slightly lower rate of 27% in 2001.

Reasons cited for single parent composition in families have varied during different decades. Specifically, death of a spouse was the most commonly cited reason for single parent families in the mid-twentieth century. In contrast, most of the rise in single parent families during the 1960s and 1970s was attributed to rising divorce rates, while increased rates during the 1980s and 1990s were due to out-of-wedlock births. The primary reason for single parent families in the early 2000s was that more and more single parents never married. Recent census data indicate that approximately one third of current births occur to unmarried women, while one fourth of children will live with a single parent. It is notable that although it has become more common for two non-married adult partners to be present in the household, the United States

Census Bureau still counts them as single parent families. Another exception that is counted as single parent families even though two married adults live in the house is military families in which one of the married partners is on extended deployment.

Because the presence of single parent families in the past was often due to death of a spouse, resulting data revealed approximately the same number of single father and single mother families [6]. Today, however, this ratio is quite different with single-parent families headed by the mother with her biological children considered to be the most common type of arrangement. In fact, data from the 2002 Census reveal that 23% of all children lived with their single mother. Although a less common arrangement, the percentage of single parent households led by a father has increased from approximately 1% in 1970 to about 5% in 2002. In 2006, there were 12.9 million single parent families, 10.4 million of which were headed by a single mother and the remaining 2.5 million that were headed by a single father [16]. In contrast to single parent mothers, single parent fathers are more likely to be divorced than never married and more likely to be sharing a home with an adult to whom they are not married.

Additional reasons for the creation of single parent families include other situations that result in the loss of a relationship (e.g., separation, abandonment by a parent) or personal choice (adoption, use of reproductive technology, or becoming or staying pregnant without a significant other) [4]. Adoption rates by single-parents also have demonstrated trend increases. For example, while only 0.5–4% of adoptive parents were single in 1970, the rate jumped to between 8 and 34% in the 1980s. This rate is likely impacted by a segment of women, often with established careers, who are choosing to have or adopt children as single mothers [12].

In the United States, there is a clear discrepancy among the percentage of single parent families within various racial/ethnic groups. For example, the proportion of single parent families by race/ethnicity is as follows: White, 22%; Black, 57%; and Hispanic, 33%.

One of the biggest problems faced by single parent families is economic hardship. Since most single parent families are headed by a female, women are disproportionately represented among the poor. Two thirds of the poor population in the United States consists of families of single mothers and their children. Reports from 1999 show that close to half (42%) of youth living in single mother families were poor compared to 18% of children in single father families and 8% of children in two-parent families [13]. The economic impact also disproportionately affects families from different racial/ethnic backgrounds.

The largest group of single mother families living below the poverty line in the United States is Hispanic (51%) followed by African-American single mother families (43%) and White single mother families (31%) [13].

Impact/Stressors on Parents

Due to the fact that a single parent is responsible for all aspects of family functioning without the support of a spouse, he or she can feel overwhelmed and face a multitude of stressors [15]. In addition to being low-income, survey data suggest that many single parent families have lower parental education, a higher degree of financial difficulty, lower participation in volunteer and religious activities, and more frequent arguments between parent and child [17].

Single parent families are considered at-risk for having poorer caregiving practices compared to mother–father families. This may partly be due to the lack of resources to adequately care for their children or the stress associated with being a single parent [3]. As children get older, mothers from single parent families appear to have greater difficulty coping with behavioral issues. For example, as children develop from childhood to young adulthood, mothers in general report fewer complaints about their children's oppositional behavior. However, the decrease in these complaints happens more slowly in low socioeconomic and single parent mothers [7]. Finally, non-mother/father families also may experience higher levels of social stress and less supportive relationships with family members [1].

Impact on Youth

The experience of living in a single parent family has been linked to a number of potential youth outcomes. For example, it has been suggested that family structure is associated with children's mental health which is impacted by factors including socioeconomic status, family processes, and social stress. Research findings also reveal that young adults who grew up in single parent and step-families reported more symptoms of depression than young adults in mother–father families [1].

Children's physical health also has been demonstrated to be compromised in single parent families as compared to step-families and two-parent families. In one sample, 15.2% of children in single parent families had limiting health conditions compared to 13.6% in step-families and 8.9% in two-parent families. The same pattern also is found for behavioral well-being [17].

It has been suggested that children in various family structures receive differing amounts of time with their mothers. For example, results from a study of single

mothers revealed that these mothers only spend approximately 83–90% of the time that married mothers spend with their children. This disparity is most likely due to the fact that single mothers have less time to spend with their children given that they bear all of the parenting responsibilities in the family. However, when employment, level of education, maternal age, and age of children are held constant, single mothers spend at least as much time with their children as their married mother counterparts [14].

The research investigating potential youth outcomes within single parent families related to the parent often having to work during “nonstandard” work hours is decidedly mixed. For example, it has been suggested that nonstandard working schedules may negatively impact parents’ ability to monitor their children and the closeness of the parent–child relationship. In contrast, findings from another study indicated that among single parents working nontraditional hours, the probability of parental monitoring after school is higher. On the other hand, the possibility of the parent being absent from important activities is higher as is the likelihood of the child feeling less close to his/her mother. Furthermore, in families where the single mothers are working a rotating shift there is a higher chance of adolescents participating in multiple forms of delinquent activities [11].

Due to the lack of a second parental figure, children in single parent families may have greater responsibilities in their families that include helping with the day-to-day functioning of the family. For instance, it has been suggested that children in single parent families are given the responsibility to be more involved in the decision-making processes of the family. This increased responsibility may take the form of having greater involvement in determining what purchases are made for themselves and for the family as a whole [8].

Much of the negative effects on children in single parent families are related to financial hardship. As a result, many families rely on child support payments as a supplemental form of income to help support the family. Unfortunately, many single parent families do not consistently receive child support payments in full. The discrepancy between expected and actual child support payments has been reported to predict child health outcomes, including school functioning, conduct issues, mental health problems, and participation in activities [5].

Coping and Strengths of Single Parent Families

Low-income, single parent families have reported that support from immediate family members is the most important resiliency factor in helping them to face life challenges

[10]. Support from extended, “multigenerational” family members also has been reported as becoming more important with the rise in the number of single parent families [2]. Other important sources of support include friends, a style of positively approaching problems, and religious/spiritual support [10].

Despite the multitude of challenges faced by single parent families, it is important to recognize the strengths that help them to cope with stressors. For example, it has been reported that the number one strength of single parent families is having a sense of “cohesion or emotional closeness” that developed as a result of enduring family stressors. Other strengths reported include “pride/optimism,” “togetherness,” “open communication,” and “teamwork” [15]. Furthermore, these strengths are more similar than different from those reported by two-parent families. Single parent families also have reported engaging in a number of on-going family rituals (connection, spiritual, love, recreational, celebration, and evolving) to help maintain family closeness and emphasize the family’s values [15]. These research findings challenge the negative perspective that is often directed towards these families [9].

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Single Subject Research Design

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Synonyms

Single-case research design; Single-participant experimental design; Time-series design

Definition

Single subject research design refers to a unique type of research methodology that facilitates intervention evaluation through an individual case.

Description

Single subject research design is a type of research methodology characterized by repeated assessment of a

particular phenomenon (often a behavior) over time and is generally used to evaluate interventions [2]. Repeated measurement across time differentiates single subject research design from case studies and group designs, as it facilitates the examination of client change in response to an intervention. Although the use of single subject research design has generally been limited to research, it is also appropriate and useful in applied practice.

Single subject research designs differ in structure and purpose and typically fall into one of three categories: within-series designs, between-series designs and combined-series designs [1–6]. Within-series designs are characterized by the evaluation of data points across time and within phases/conditions (e.g., treatment vs. no-treatment conditions) [2]. Specific types of within-series designs include the simple phase-change design, the changing criterion design, parametric, and periodic interventions design. The simple phase-change design and the changing criterion design are the most common within-series designs. Parametric and periodic interventions designs are used less frequently. Between-series designs allow for the comparison of two or more conditions (i.e., baseline compared to intervention or two or more interventions) [2]. The alternating-interventions design and simultaneous-interventions design are between-series designs. As the name suggests, combined-series designs facilitate evaluation both within and between series and include the multiple baseline design, the crossover design, and the constant-series control design. Although certain studies are amenable to the crossover and constant-series control designs, they are used less frequently than the multiple baseline design – the most common type of combined-series design. The multiple baseline design's structure is a simple phase-change design in which the intervention phase is repeated across participants, settings, or behaviors. Ideally, the intervention phase is replicated across three or more different participants, settings, or behaviors, and interventions are implemented sequentially after changes are noted in the first implementation. For example, if disruptive behavior during unstructured periods of time at school is the behavior of concern, and the intervention is a positive behavior support plan individualized to the student's particular needs, the plan could be implemented first during hallway transitions, and once improvements are observed, the plan could then be implemented during lunch, and so on.

Data from single subject research designs have traditionally been analyzed through visual inspection, including the assessment of level, trend, and variability

[1-6]. However, certain nonparametric statistical tests may also be appropriate for the analysis of data collected in single subject research designs. Across all types of single subject research designs, internal validity is established by replication, and threats to internal validity can be reduced by repeated assessment, continued assessment of client variability, design flexibility, and randomization.

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Single Transverse Palmer Crease

Synonyms

Simian crease; Simian line; Single palmer crease

Definition

A single crease that extends across the palm of a human hand caused by a fusion of two palmer creases (flexion creases)

Description

Palmer creases develop by the 12th week of gestation. A single transverse palmer crease appears in 1 out of 30 normal people. It is more commonly found in males, and can sometimes indicate a developmental problem, such as Down syndrome, Aarskog syndrome, fetal alcohol syndrome, Klinefelter syndrome, gonadal dysgenesis, cri du chat syndrome, pseudohypoparathyroidism, Turner syndrome, Rubella syndrome, Cohen syndrome, and trisomy 13.

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Single Word Utterance

► Holophrases

Single-Case Research Design

► Single Subject Research Design

Single-Participant Experimental Design

► Single Subject Research Design

Sinistral

► Left Handedness

Skin Inflammation

► Acne

Skinner, Burrhus Frederick

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Life Dates

1904–1990

Introduction

Skinner is considered to be the most influential psychologist of the twentieth century. His work has had dramatic impact on the fields of applied behavior analysis, the experimental analysis of behavior, education, and the analysis of verbal behavior.

Educational Information

Skinner graduated from Hamilton College with a B.A. degree in literature in 1926 with the intention of becoming a writer. After abandoning this career path, he enrolled in Harvard and earned a Ph.D. in psychology in 1931. He remained at Harvard until 1936 when he moved to the University of Minnesota. His next stop was at Indiana University where he served as department chair from 1945–1948. He then returned to Harvard in 1948 where he remained until his retirement.

Accomplishments

Quite simply, Skinner's accomplishments are far too numerous to mention within the confines of a short biography. Some of his more noted accomplishments, however, will be considered. First and foremost, Skinner is known as the father of radical behaviorism, which is the theory that behavior is determined by its consequences. He began describing his work in a 1938 book titled *The Behavior of Organisms*. His philosophy of behaviorism was more clearly explained in his 1953 book, *Science and Human Behavior*. A number of books, approximately 18, followed his treatise on the behavioral philosophy of human behavior. One of his books, *Walden II*, published in 1945, described his ideal utopian society that was built on the basic principles of behaviorism. *Beyond Freedom and Dignity*, published in 1971, described how understanding the scientific principles that guide human behavior could lead to an improved society; one without punishment and coercion. Many of Skinner's political and social views were expressed in these two novels which earned him a great deal of criticism and cynicism from his detractors. Skinner also published approximately 180 articles on topics ranging from the experimental analysis of behavior to the role of behavioral psychology in education [1].

Although a prolific author, Skinner invented a number of devices that helped to test his theories and that engendered both praise and criticism. Some of these devices included the cumulative recorder (for studying the effects of different schedules of reinforcement), the air crib (also called the "baby tender"), the operant conditioning chamber, the teaching machine, the pigeon guided missile system, and a thinking aid to help with writing [2].

He received a number of awards throughout this career, with some of the most notable being the Distinguished Scientific Contribution Award from the American Psychological Association in 1958, National Medal of Science in 1968, the Gold Medal Award from the American Psychological Association in 1971, the International Award from the Joseph P. Kennedy Foundation for Mental

Retardation in 1971, the Humanist of the Year Award in 1972 from the American Humanist Society, the Award for Distinguished Contributions to Educational Research and Development from the American Educational Research Association in 1978, and the Citation for Outstanding Lifetime Contribution to Psychology from the American Psychological Association in 1990 [3].

One of Skinner's "accomplishments" was that he was roundly criticized by many who either did not understand his theories or who disagreed with him on philosophical grounds. Noam Chomsky, for instance, is a noted cognitivist who thought that Skinner's description of verbal behavior was incomplete, unscientific, and had little merit for the world beyond Skinner's laboratory. The ensuing debates between his detractors and supporters added much to the growth of behavioral psychology, and psychology in general, and still continue today [4].

Contributions

Skinner's contributions were profound in both psychology and education. His work gave rise to both the experimental and applied analysis of behavior as well as to the growth of psychology as a legitimate science. His behavioral principles influenced the treatment and care given to individuals with mental retardation and other developmental disabilities. Skinner's work directly influenced other psychologists who worked to improve education, most notably Fred S. Keller and Ogden Lindsley. Keller, along with Skinner, pioneered the Programmed System of Instruction which is used in various forms today. Lindsley based his Precision Teaching on Skinner's behavioral principles. Today, some of the major journals in psychology owe their existence to Skinner (e.g., *Journal of Applied Behavior Analysis*, *Journal of Experimental Analysis of Behavior*, *Analysis of Verbal Behavior*, *The Behavior Analyst*, to name a few). In numerous surveys, the most eminent psychologists cited Skinner and his work as their most dominant influence. Skinner is one of few psychologists whose work and influence endure far past his death.

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Skinner's Behaviorism

► Radical Behaviorism

Sleep

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Synonyms

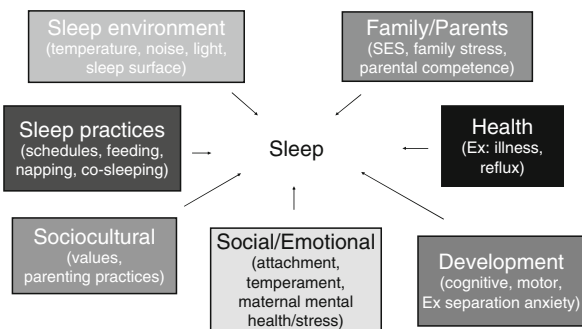
Normal sleep; Sleep architecture; Sleep stages; Sleep structure

Definition

Sleep is one of a child's primary activities from infancy to adolescence. Sleep in infancy and childhood is often thought of as a passive, inert, or isolated state, but it is actually a very active, physiological state that is influenced by a multitude of factors.

Description

Sleep is significantly influenced by a wide array of behavioral, developmental, health, environmental, social and emotional factors, and characteristics of and sleep practices of both the caregiver and child (see Fig. 1). Sleep is necessary for children to function at their optimal level, and lack of sleep can affect numerous aspects of their growth, health, behavior, and development, as well as overall quality of life.



Sleep. Fig. 1 (Adapted with permission from Jodi Mindell.)

Remarkable changes occur in sleep patterns from infancy to adolescence. In early infancy (0–2 months), the typical sleep requirement is 16–20 h per 24 h period, typically separated a period of wakefulness that ranges from 1–3 h. Sleep periods are evenly distributed between day and night. From 2–12 months of age, the typical sleep requirement is 9–12 h at night, while napping 2–4 hours per day. During this time, as nighttime sleep begins to consolidate, the frequency of daytime naps decreases from four naps to as few as one as the child gets older, each lasting 30 min to 2 h. Night feedings also decrease during this time period, and by the age of 6 months, should no longer be necessary. Between ages 1 and 3 years, the typical sleep requirement is 12–13 h per 24 h period. By age 18 months, most children have progressed from two naps to one. Typically, the morning nap becomes shorter, while the afternoon nap extends in length, until the morning nap is no longer needed. Between ages 3 and 5 years, the typical sleep requirement is 11–12 h per 24 h period. Naps decrease from one to no nap. At age 3, 92% of children still nap. At age 4, 57% of children still nap. By age 5, 27% of children still nap. For school age children between ages 6 and 12, the typical sleep requirement is 10–11 h per 24 h period. Well-rested children should no longer be sleepy during the day. For adolescents between ages 12 and 18, the typical sleep requirement is 9 to 9½ h each night. Alarming, most teens report obtaining 7 to 7½ h per night.

Relevance to Childhood Development

Sleep is necessary for children to function optimally. Multiple studies have shown that when children and adolescents do not obtain adequate sleep, whether from sleep restriction or due to presence of a sleep disorder, their physical, emotional, cognitive and social development are affected. Sleep is necessary for adequate cardiovascular, immune, and metabolic functioning and growth hormone production. Children who do not obtain adequate sleep are more likely to be emotionally dysregulated, impulsive, and inattentive, affecting their academic performance and social relationships.

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Sleep Apnea

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Synonyms

Obstructive sleep apnea syndrome; Pediatric obstructive sleep apnea; Sleep disordered breathing

Definition

Childhood obstructive sleep apnea is characterized by repeated episodes of partial or complete upper airway obstruction that occur during sleep that are usually associated with disruption in gas exchange and/or sleep fragmentation.

Description

Introduction

Sleep disordered breathing (SDB) is a spectrum that encompasses primary snoring at the mild end of severity to classic obstructive sleep apnea syndrome (OSAS) at the more severe end. Upper airway resistance and obstructive sleep hypoventilation are part of this spectrum and are felt to be less severe than outright obstructive sleep apnea syndrome. OSAS is characterized by repeated episodes of upper airway resistance along with partial or complete airway obstruction during sleep. These episodes can be associated with ventilation and/or oxygenation disturbances. A degree of sleep fragmentation can be seen with these patients as well.

Sleep disordered breathing can occur in a child of any age ranging from neonates to adolescents. OSAS occurs in approximately 1–3% of the pediatric population. More specifically, OSAS affects up to 3% of children between the ages of 2 and 8 years old.

Pathophysiology

Obstructive sleep apnea syndrome occurs when the upper airway collapses or when the luminal cross section is reduced during inspiration. Collapsibility of the upper airway is a dynamic process that involves multiple factors such as sleep state, anatomy, respiratory drive, and neuromotor tone. The airway of the child is inherently smaller than that of an adult. As a result, size of the pharynx which includes the size of the adenoids and tonsils has long been implicated in pediatric obstructive

sleep apnea. It has been shown that the site of upper airway obstruction in children with obstructive sleep apnea is at the level of the tonsils and adenoids. In normal children, it occurs at the level of the soft palate. Tonsils and adenoids increase in size from birth to 12 years of age with maximal growth appearing between the 2 and 7 years of age. However, multiple studies have not shown a strong correlation between increased adenotonsillar size and obstructive sleep apnea. Thus, pediatric obstructive sleep apnea may not be caused by adenotonsillar hypertrophy alone. Obesity can be a contributing factor in OSAS. Adipose tissue within the muscles and soft tissue surrounding the airway can narrow the pharynx. Thus, the likelihood of airway collapse is increased. Children with craniofacial abnormalities are at high risk for OSAS. Examples of conditions associated with craniofacial abnormalities include Down syndrome, achondroplasia, Pierre Robin syndrome, and Apert's syndrome.

History and Physical Examination

Nightly loud snoring is almost universal with pediatric OSAS. In many patients, the snoring is accompanied by pauses in breathing, choking/gasping for breath, and neck hyperextension. Other associated symptoms can include sweating, restless sleep, and dry mouth. It should be noted that snoring itself is not always an accurate predictor of polysomnographic OSAS. Daytime sleepiness can be a manifestation of pediatric OSAS. However, daytime sleepiness is much more prominent with adult OSA as compared to pediatric OSAS. Physical examination of a child with OSAS is usually normal. However, children may present with adenotonsillar hypertrophy and craniofacial abnormalities which should alert a clinician to the possibility of OSAS. Obesity and failure to thrive can be seen as well. In rare instances, cardiovascular consequences of cor pulmonale and congestive heart failure can be seen in children with OSAS.

Diagnosis

Nocturnal polysomnography (sleep study) is felt to be the gold standard for diagnosis of OSAS. It is the diagnostic test that should be ordered in any child with suspected SDB. The nocturnal polysomnogram should be performed in a pediatric sleep laboratory. Adult oriented laboratories attempt to perform sleep studies in children with limited success. Other diagnostic studies have been looked at to evaluate OSAS which include symptom questionnaires and video/audio recordings. These individual studies have not shown adequate sensitivity or specificity in diagnosing pediatric OSAS.

Treatment

Tonsillectomy and adenoidectomy is first line treatment for pediatric OSAS. It is felt to be curative in approximately 80–85% of children with this diagnosis. However, a percentage of children have symptoms that persist despite adenotonsillectomy especially in children with obesity, craniofacial abnormalities, and cerebral palsy. Continuous positive airway pressure (CPAP) has been shown to be an effective therapy for OSAS in children who have either failed surgical intervention or are not good surgical candidates. Other treatment modalities include weight loss, oral appliances, supplemental oxygen, and tracheostomy.

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Sleep Architecture

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Synonyms

Sleep; Sleep stages; Sleep structure

Definition

Sleep architecture refers to the structure of sleep cycles throughout the night and the five stages of sleep including four stages of non-rapid eye movement (NREM) sleep and the fifth stage, rapid eye movement (REM) sleep.

Description

Sleep architecture allows for the quantification of sleep characteristics in order to promote accurate diagnosis of

sleep disturbance or related medical or psychological diagnoses. Some relevant measures of sleep architecture include the following:

Sleep onset latency – the time between initiating sleep behavior (lights out) to onset of first sleep stage

REM latency – the time between sleep onset and occurrence of first REM period

Total sleep time – total time (in minutes) sleeping from lights out to lights on

Sleep efficiency – ratio of time asleep compared to time recording (lights out to lights on)

Measurement of sleep architecture: Sleep architecture is mapped out by the cyclic series of stages achieved during sleep. Multiple sleep cycles are achieved during the night, each lasting approximately 1.5 h. The breakdown of stages within each sleep cycle varies from the initial sleep cycle to later cycles that occur in the early morning hours. Identification of sleep stages is made using nocturnal polysomnography (overnight sleep study), which utilizes EEG data and measurements of muscle tone, eye movements, leg movements, respiratory function and patterns, and heart rate. Sleep architecture is typically depicted in a visual chart called a hypnogram (Fig. 1).

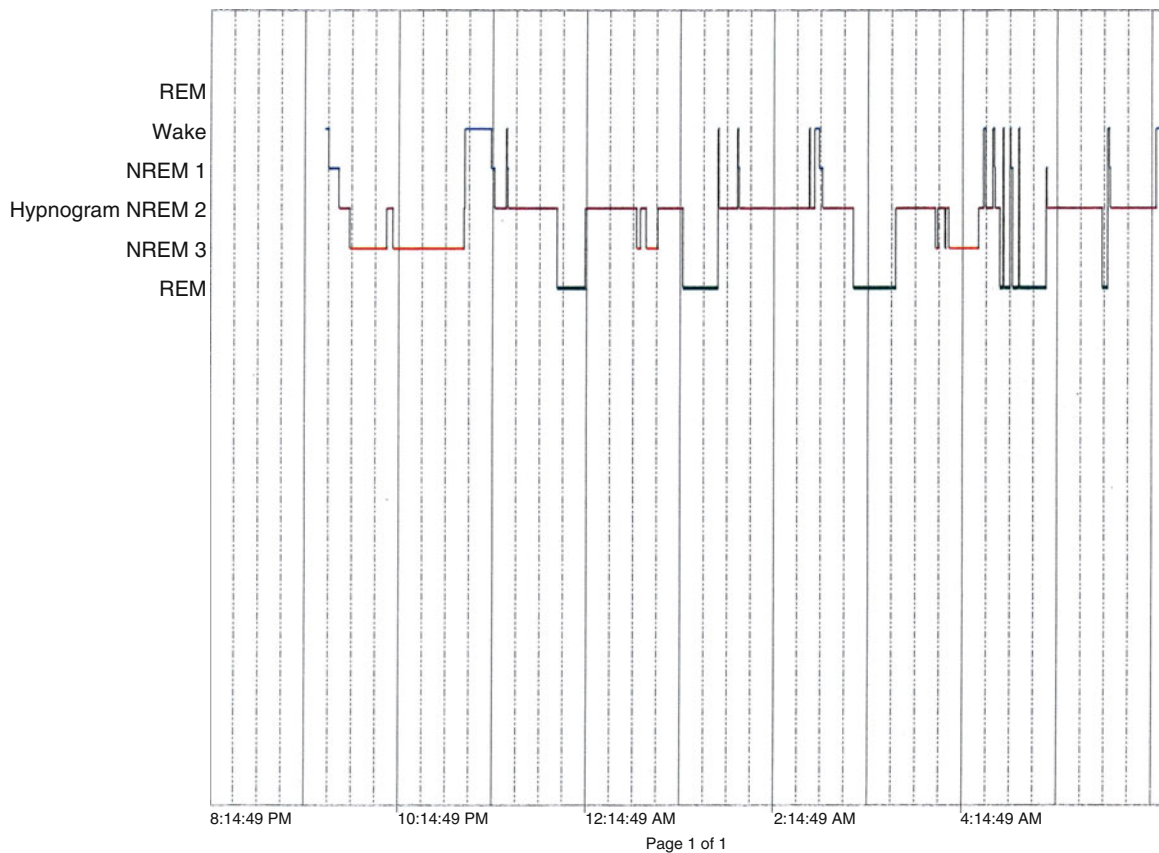
Non-REM sleep: Non-REM sleep is comprised of stages 1–4 of sleep and is characterized by relatively diminished brain activity and maintenance of voluntary motor movements [5, 8].

Stage 1: Stage 1 of sleep is considered “light sleep” and marks the transition from wakefulness to being asleep. Lasting a short period of 1–5 min, stage 1 sleep often involves muscle jerks or twitches and recall of visual images [5, 6, 8].

Stage 2: Stage 2 sleep is identified by the presence of high frequency, rapid bursts of EEG activity called sleep spindles and high amplitude low frequency waves called K-complexes. This stage is also considered initiation of “true” sleep and the initial occurrence of stage 2 lasts 5–25 min [5, 6, 8].

Stage 3/4: Stages 3 and 4 are often considered together and reflect deep sleep. They are identified as containing delta wave, or slow wave EEG activity. It is most difficult to wake people when they are in these stages of sleep. Initial occurrence period of stage 3/4 sleep is approximately 30–45 min and is typically followed by a brief arousal. Length of delta wave sleep decreases as the night progresses in healthy individuals [5, 6, 8].

REM sleep: REM is characterized by dipolar ▶saccadic eye movements, increased central nervous system activity, muscle paralysis (except for breathing and erectile function), and coincides with dreaming. REM typically occurs 70–90 min after sleep onset [6]. Length of REM sleep



Sleep Architecture. Fig. 1 Example of a normal hypnogram from a healthy child.

during each sleep cycle increases as the night progresses [6]. Initial REM periods average approximately 10 min, while REM sleep in the early morning hours may last up to 60 min [5, 6].

Disruptions in sleep architecture: Sleep architecture may be altered by a number of factors, resulting in diminished sleep quality or sleep efficiency and subsequent daytime sleepiness and problems with daytime functioning. Factors that result in disrupted or altered sleep architecture include medical health issues (e.g., seizure disorders, developmental disabilities, pulmonary disorders) [4], substance use (e.g., alcohol, cigarettes, illicit drug use), psychotropic medications, psychopathology (e.g., mood or anxiety disorders, schizophrenia, post-traumatic stress disorders), specific sleep disorders [4, 5], ►jet-lag [4], temperature [4], or other environmental factors (e.g., household/neighborhood activity, bed-sharing) [1, 4, 5].

Periods of arousal are common throughout the night, and they are typically brief and do not disrupt overall sleep architecture. However, prolonged periods of arousal, or arousal that results in conscious wakefulness, interrupts

the sleep cycle and may decrease the total amount of REM or delta wave sleep achieved, which is critical for sleep quality [4, 5, 7].

Health and sleep architecture: Increasingly, evidence for the importance of sleep (length and quality) on our health is being found. Sleep appears to impact various facets of physical health beyond daytime sleepiness and cognitive impairment. Specifically, insufficient sleep may result in dysregulation of immune function, cardiovascular disease, and endocrine functioning [3]. For example, shortened sleep time and fragmented sleep are associated with obesity, weight gain, and difficulties with weight loss. In turn, health problems may alter sleep architecture. Evidence for this with regard to respiratory disorders is widely known [4, 5, 7].

Relevance to Childhood Development

Developmental changes: Neonates and infants do not demonstrate the five stages of matured sleep structure. Instead, they demonstrate two clear sleep states referred to as “quiet” and “active” sleep, the latter reflecting cortical

activity similar to REM. Active sleep in infants comprises approximately 50% of sleep time, and this ratio decreases over the course of childhood such that by adolescence it comprises approximately 25% of sleep time. Slow wave, or delta wave sleep, predominates infancy, peaks in early childhood then declines over the course of development. In fact, minimal stage 3/4 sleep is observed in the geriatric population, which contributes to their complaints of “light” or disrupted sleep. The initial occurrence of delta waves and sleep spindles, marking different nonREM sleep stages, appear in the first year of life, and complete sleep staging is usually present by age 5 [5].

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Sleep Disordered Breathing

► Sleep Apnea

Sleep Disorders

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Synonyms

Nocturnal disorders; Sleep disturbances; Sleep problems

Definition

Sleep disorders are common and result in insufficient amount of sleep and/or sleep of poor quality, which significantly affects daytime functioning and quality of life in children.

Description

The most commonly reported sleep disorders in children are described in detail in the following sections. Obtaining a detailed and accurate history followed by a comprehensive physical exam, including screening for developmental delays and cognitive dysfunction, appears to be a cornerstone for diagnosing pediatric sleep complaints. It is important to involve family members in the clinical interview to understand the potential etiology of sleep disturbances because children and adolescents often do not recognize nocturnal events that can disturb sleep. Developmental history with focus on sleep and wake patterns as well as potential medical illnesses that affect sleep during infancy and childhood can provide clues to the duration and degree of sleep disturbances in the child. Obtaining pertinent family history of sleep disorders is equally important given that certain conditions such as narcolepsy with cataplexy, chronic primary insomnia, restless legs syndrome, obstructive sleep apnea syndrome and advanced-sleep phase syndrome have been shown to be influenced by genetic factors [11].

Insomnia

Insomnia in children is defined as repeated difficulty with sleep initiation, duration, consolidation, or quality that occurs despite age-appropriate time and opportunity for sleep resulting in daytime functional impairment for the child and/or family. Behavioral insomnia of childhood (BIC) typically presents as bedtime refusal or resistance, delayed sleep onset, and/or prolonged night time waking that require parental intervention. BIC is classified into three categories: sleep-onset association type, limit setting type, and combined type. In the sleep-onset association type, children have difficulty initiating sleep independently and associate falling asleep with certain circumstances, such as place (couch or parent's bed), a person's presence (parent), or an activity (feeding from a bottle, being rocked, watching television). These circumstances are required for the child to re-initiate sleep in the middle of the night. In limit-setting type, the child delays bedtime with multiple requests or refusal, while the parent has difficulty setting limits, allowing bedtime to delay. If a child requires certain circumstances to initiate sleep and there are difficulties with parental limit-setting, the diagnosis is combined type.

Etiology of pediatric insomnia is usually multifactorial. Assessment should include screening for presence of concurrent medical, psychiatric and developmental disorders and associated impairments in home and school settings. It is also vital to assess for presence of underlying primary sleep disorders like obstructive sleep apnea and restless legs syndrome as possible etiologies behind a presenting symptom such as insomnia. It is also important to determine whether the difficulties with sleep onset and/or maintenance are due to inappropriate/inconsistent sleep schedules or napping schedules. For example, parents may have expectations of napping that may be outside of a child's developmental need or implement inconsistent or inappropriate naps (e.g., naps closer to bedtime), which lead to difficulty regulating the child's sleep-wake schedule. Eliminating the nap at an inappropriate age can also result in an increase in the child's behavioral difficulties at bedtime rather than helping with earlier sleep onset and/or sleep maintenance. The same issues relate to teenagers, who often have variable sleep schedules, inappropriate napping, later bedtimes, and early school start times. Subjective sleep complaints are common in children with ADHD, major depressive disorder, and anxiety disorders. This is proposed as a bidirectional relationship as unstable emotional states can lead to persistent sleep problems and chronic sleep deprivation can result in disrupted behaviors and mood.

Behavioral interventions are the mainstay of treatment of pediatric insomnia. Behavioral interventions that aim to help children initiate and maintain sleep independently, resulting in increased total sleep time and improved sleep quality, produce both reliable and lasting improvements in bedtime problems and night wakings in infants and young children. Extinction and parent education/prevention have received strongest support after empirical review. Gradual extinction, bedtime fading, positive routines, and scheduled awakenings are also strongly supported as efficacious treatments for young children. For older children and adolescents, behavioral strategies that aim to reduce arousal at bedtime are often recommended. Sleep hygiene education is particularly important. In addition, progressive muscle relaxation, stimulus control and cognitive behavioral therapy techniques such as thought stopping, increasing positive thinking, and journaling "worries" at bedtime are often recommended.

Parasomnias

Parasomnias include dysfunctions related to sleep, sleep stages, and partial arousals from sleep. The most common parasomnias include night terrors, confusional arousals, and sleepwalking and talking. There is no known etiology

for parasomnias, but it is believed that they are related to maturation. Evaluation for parasomnias includes the usual time when the episode occurs, description of the behaviors and movements, the ability of the child to remember the episode, the presence of symptoms during wakefulness, and the presence of stereotypical movements during the episode. Parasomnias typically occur in the first third of the night, during which the child is inconsolable or nonresponsive for a short duration of 5–15 min with amnesia for the event the following morning. Parasomnias often increase during periods of sleep deprivation, thus it is also important to evaluate adequate sleep hygiene. The parents should avoid awakening the child since this may increase agitation and prolong the episode. Typical treatment includes reassuring and educating the child and family of the parasomnias, implementation of sleep hygiene measures, extending the sleep time, and implementation of safety measures. Depending on the frequency and severity of the episodes, medication may be given in order to prevent high risk of injury, violent behavior, or significant disruption to the family. Short-acting benzodiazepines such as Klonopin or Serax are the most common medications prescribed. They are used for 3–6 months until the episodes have disappeared. Scheduled awakenings have also been used in order to avoid prescribing medication to the child. This is a behavior modification that involves interrupting the sleep staging by waking the child about a half hour before they are most likely to experience a primary partial arousal parasomnia. This has been shown to be effective in eliminating night terrors, but may be difficult to encourage the parents to implement on a regular basis.

Night terrors are partial arousal parasomnias which are characterized by sudden arousal from slow-wave sleep accompanied by intense fear. These are usually disturbing to parents or other family members, but the child is completely unaware of his or her behavior. Around 3% of children experience night terrors, and the typical age of onset is usually between 4 and 12 years. There is a strong genetic component present in night terrors, and 80–90% of children who experience them have a first-degree relative with the same symptoms. Sleep terrors are usually characterized by a sudden onset. The child looks extremely agitated, frightened, and confused during the episode. Crying, screaming, and extreme physiological arousal are also common. The child is also usually clumsy or flailing, often pushing the parents away or behaving strangely. Diagnostic criteria include complaints of a sudden episode of intense terror during sleep occurring within the first third of the night, partial or total amnesia, onset during stage 3 or 4 of sleep, and the absence of other medical or

sleep disorders that could explain the episode. Confusional arousals are much less extreme, with the child typically sitting up in bed appearing confused or agitated, but not typically leaving the bed.

Sleepwalking is a common partial arousal parasomnia which occurs as a result of becoming caught between sleeping and wakefulness in a partial arousal state. The child's eyes may be open, and he or she may appear confused, dazed, or agitated. The child may also mumble incoherently. Sleepwalkers are also clumsy and often perform strange actions such as urinating in a closet. Occurrence can be either rare or nightly.

Between 15% and 40% of children occasionally sleepwalk while 3–4% experience weekly or nightly episodes. Average age of onset is between 4 and 6 years. Diagnostic criteria include exhibition of ambulation occurring in sleep, onset typically in prepubertal children, difficulty in arousal during the episode and amnesia following the episode, occurrence in the first third of the sleep episode, onset during stage 3 or 4 sleep, and the absence of any medical or other sleep disorders that could account for the symptom.

Safety measures may include using gates, locks on doors or windows, and alarm systems or bells to alert parents. The parents should not try to wake the child, but instead the child should be guided back to his or her bed. Benzodiazepines are also prescribed in severe cases. Scheduled awakenings have also been found to be effective in eliminating sleepwalking behavior and maintaining treatment gains.

Sleep talking, also known as “somniloquy” is a common occurrence during childhood. It includes coherent speech, incoherent mumbling, and utterances during the sleep period. Typically the child does not remember talking during his or her sleep. It usually is of no concern to parents, but occasionally significant outbursts and loud talking can disrupt parents' sleep. Sleep talking may be related to other parasomnias but alone is not associated with pathological states.

Circadian Rhythm Disorders

Circadian rhythm disorders are characterized by normal sleep quantity and quality but at the wrong time of day. The circadian rhythm is the body's “timekeeper,” and it greatly affects the time of sleep onset and awakening. During adolescence, the circadian rhythm may be delayed or advanced from the desired hour of sleep or it may be out of phase with normal clock time. This occurs as a result of a combination of genetics and social norms associated with adolescence. Parents of children with circadian rhythm disorders often have the same symptoms or

propensity as their child. Also, adolescents begin staying up later in order to chat online, surf the internet, talk on the phone, or hang out with friends. This causes the child to be exposed to light during the wrong time of day, which is right before or during the desired time of sleep. The light from televisions or computer screens is a common way adolescents are exposed to light.

Daytime sleepiness is a frequent result of circadian rhythm disorders. Children commonly suffer from symptoms similar to those of attention deficit hyperactivity disorder (ADHD), depression or behavioral dysregulation, and often sleep during their classes. The distinguishing feature of circadian rhythm disorders is that sleep is normal and daytime sleepiness subsides when the child is able to sleep and wake at his or her own schedule. All people have a circadian rhythm of around 24 h. This is caused to be consistent with clock time by time cues called “zeitgebers.” The main example of this is light, but activity schedules, exercise and other environmental factors are included. If an individual fails to follow certain environmental zeitgebers then they can develop either delayed sleep phase syndrome (DSPS) or advanced sleep phase syndrome (ASPS). Some people's sleep phase moves progressively earlier or later and causes them to go in and out of synchrony with the environmental time of sleep. This is called non-24-h sleep-wake disorder. Circadian rhythm disorders occur in at least 10% of children. DSPS is the most prevalent, with a prevalence of 5–10% in adolescents. ASPS and non-24-h circadian rhythm are seen less frequently and occur in adolescents.

Delayed Sleep Phase Syndrome

DSPS involves a significant, persistent, and intractable shift in the sleep-wake schedules which interferes with the environmental demands of the child. The child can present with both academic and behavioral problems. Both getting the child to go to bed and waking the child in the morning are often problems. Children are less resilient of sleep deprivation, and the delay may cause pathologic symptoms. Children with DSPS may present with problems such as bedtime struggles or difficulty awakening at the desired time, complaints of insomnia at night or excessive sleepiness in the morning, inability to wake up at the desired time, falling asleep at school. The diagnostic criteria include delayed sleep pattern by at least 1 h, an inability to fall asleep at the desired clock time and an inability to awaken spontaneously at the desired time, a presence of 1 month, normal quality and quantity of sleep when allowed to follow own schedule, later sleep on weekends and holidays with less daytime sleepiness, with no other sleep or psychiatric disorder present to cause it.

People with DSPS are referred to as “night owls” and report functioning more efficiently in the evening and at night. This may become a lifestyle for children with DSPS if their identities are found in late night activities such as chat rooms or phone calls. Children with DSPS frequently take naps during class, complain about daytime sleepiness, have poorer academic achievement and a greater number of injuries, and are more emotionally upset than other children. They are also more likely to experience academic, emotional, and behavioral problems during the morning hours, and they typically do their best work at night. Thus, circadian rhythm disorders are frequently mistaken as other sleep disorders such as insomnia (due to the difficulty falling asleep) or excessive daytime sleepiness (due to the difficulty awakening in the morning and/or resulting insufficient sleep from the necessary early rise time for school).

Treatment options for DSPS include appropriate sleep hygiene, bright-light therapy, melatonin, advancing bedtime, and chronotherapy. The beginning treatment phase is usually the most difficult and requires strict adherence to the treatment protocol. The child should also have the same bedtime and wake-up time every day. Television and computers should be avoided for the last hour before bedtime, and the child's bed should only be used for sleeping. Caffeine, if consumed, should be limited to before or during lunch. Bright-light therapy includes controlling light and dark exposures throughout the day. With this treatment, the child uses bright-light exposure during the day and avoids light exposure after sunset. Exposure to the light of dawn is important to training the circadian rhythm, and controlling the time of light and dark exposure helps produce a phase advance. There is limited evidence found on light therapy, but it appears to be a rational and effective treatment for DSPS, but family compliance may be a problem. Melatonin has been shown to be effective in altering the sleep phase. It is taken 1 h before bedtime and helps advance the timing of sleep. 1 mg is the beginning dosage given and is slowly increased to 3 mg if found to be ineffective. Bedtime and melatonin administration is then advanced by 15 min each day until the desired time of sleep onset is achieved. Chronotherapy is also used as treatment for DSPS. With this therapy, the bedtime is systematically delayed by 3 h each night until the desired bedtime is reached.

Advanced Sleep Phase Syndrome

ASPS is a disorder where the major sleep episode is advanced beyond the desired clock time. Symptoms of this include evening sleepiness resulting in the inability to remain asleep until the desired time of sleep and early

awakening lasting for at least 3 months. Sleep onset times are as early as 5:00 pm but no later than 8:00 pm, and wake-up times range from 1:00–5:00 am. ASPS is more likely to occur in children who have a family member with similar symptoms. Treatment for ASPS includes bright-light therapy and chronotherapy. Bright-light therapy would expose the child to light during the early evening hours producing a phase delay. Chronotherapy would systematically delay the bedtime each night until the desired bedtime is achieved.

Non-24-h Sleep-Wake Disorder

This disorder occurs when the circadian pacemaker changes with respect to the 24-h day. Prolonged exposure to light can cause the circadian pacemaker to maintain a schedule longer than a normal 24-h day. This causes the child's sleep schedule to have no pattern, but sleep logs usually reveal a successive delay in sleep onset and wake times. This may lead to insomnia and excessive daytime sleepiness when the endogenous rhythm is out of phase with normal clock time, but when they are in phase, the symptoms are not present. Melatonin is the major treatment for this disorder. It is also important that the child is active during the wake time and in dark and quiet conditions during time for sleep.

Sleep-Related Movement Disorders

The most common sleep-related movement disorders include rhythmic movement disorder (RMD), periodic limb movement disorder (PLMD), and restless legs syndrome (RLS). In RMD, the child exhibits repetitive movements at sleep onset and following a nocturnal arousal in order to initiate sleep. Most often, the child presents with repetitive head rolling, head banging, or body rocking. RMD is very common in young children and often resolves by age of 4–5 in typically developing children. RMD is generally benign, and treatment involves parental reassurance and safety (tightening bolts on bed or crib, padding headboard to avoid bruising). In rare cases that are either severe or persist into older childhood or adolescence, treatment with benzodiazepines for a brief term may be useful.

PLMD is a movement disorder characterized by periodic limb movements in sleep (PLMS) that result in fragmented sleep of poor quality and impairment in daytime functioning due to the sleep disturbance. PLMS are brief movements (jerks) that can last up to 5 s occurring at 20–40 s intervals, typically in the lower extremities. PLMD is diagnosed by overnight polysomnography documenting the presence of PLMS. The most common cause of PLMD

is low ferritin, for which supplemental iron may be helpful. Dopaminergic agonists may be helpful in some cases.

RLS is a clinical diagnosis made using adult criteria at this time. Adult criteria include an urge to move the legs, urge to move begins or worsens when sitting or lying down, urge to move is partially or totally relieved by movement, and urge to move is worse in the evening or night than during the day or only occurs in the evening or night. Clinically, children often describe RLS using age-appropriate symptoms such as “spiders crawling,” “tickles in my legs,” or “creepy crawly feeling.” Prevalence of RLS in children is unknown, but there is felt to be a strong family history component. RLS and PLMD are often comorbid. RLS is a clinical diagnosis, but often is associated and comorbid with PLMD documented on an overnight sleep study. However, diagnosis of PLMD is not as highly correlated with comorbid RLS. As in PLMD, the most common cause of RLS is low ferritin, for which iron supplements can be helpful. Dopaminergic agonists may also be helpful in some cases. There is a proposed relationship between ADHD and RLS, implicating a possible dopamine pathway as the common pathophysiologic link. Symptoms of ADHD have been found to improve with treatment for RLS and/or PLMD with a dopaminergic agonist.

In summary, pediatric sleep disorders are a common occurrence resulting in insufficient and/or fragmented sleep of very poor quality. The presence of untreated sleep disorders is associated with significant daytime impairments in social, academic, emotional, and neurobehavioral functioning. Pediatric sleep problems can present as the primary sleep disorder, or as a secondary consequence of underlying medical or psychiatric disorder. Children should be routinely assessed for sleep disorders, as the presence of these disorders can significantly impair their quality of life.

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Sleep Disturbances

► Sleep Disorders

Sleep Problems

► Sleep Disorders

Sleep Stages

► Sleep

► Sleep Architecture

Sleep Structure

► Sleep

► Sleep Architecture

Sleep Terror Disorder

► Night Terrors

Sleeper Effect of Divorce

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Synonyms

Adult children of divorce; Intergenerational transmission of divorce; Long-term effects of divorce; Sleeper influence

Definition

The sleeper effect of divorce refers to the phenomenon whereby individuals who previously showed positive recovery following childhood parental divorce later exhibit adjustment difficulties in young adulthood stemming from the earlier experience of parental divorce [1, 2]. Studies show that some children and adolescents who appear to recover and cope well after parental divorce have long-term effects in young adulthood that were not expected based on previous adjustment. Longitudinal research suggests that as children of divorce enter adulthood, they may be more likely than the general population to experience concerns about not being loved, have difficulties in relationship formation and maintenance, and have fears regarding betrayal and abandonment in romantic relationships [2]. Furthermore, in comparison to their young adult counterparts from non-divorced families, adult children from divorced families have been found to be at risk for earlier sexual activity, low self-esteem, reduced life satisfaction, and poorer psychological well-being [2–6]. Additional long-term outcomes identified in adults from divorced families include lower educational attainment, less close ties to parents (especially fathers), more marital discord, and greater likelihood of experiencing their own divorce [7]. However, a great deal of controversy exists regarding the validity and the extent of the sleeper effect of divorce and its delayed manifestations [8].

Description

The existence of a sleeper effect of divorce was first identified by Judith Wallerstein in her longitudinal study of parental divorce [1, 9]. Wallerstein's study began in 1971, and followed 131 children from 60 divorced families over a span of 25 years [2]. At the 10-year follow-up, Wallerstein observed an unexpected finding which she termed the sleeper effect. Especially evident among the young women in her sample, this delayed effect of parental divorce at young adulthood was noteworthy, as it coincided with a time in life when important decisions are being made regarding love and commitment [9]. This sleeper effect pattern was evident in 66% of the young adult women in her study between the ages of 19–23. Presumably, these young women were overwhelmed with fears and anxieties about commitment and betrayal in their own relationships as they reflected upon the lack of success of their parents' marriages. Among the 19–23 year old young men in her sample, 40% were described as having limited educational attainment, a perception of having little control over their lives, and not having clearly identified goals.

Wallerstein's research on the long-term effects of divorce has received considerable attention over the years from scholars, the general public, and the media, and her work also has influenced clinical practice and social policy [8]. While Wallerstein's study is noteworthy for directing attention to adult outcomes of parental divorce, her research also has drawn criticism for its methodological limitations. Although her use of case-studies based on in-depth clinical interviews provides vivid and rich personal accounts of parental divorce, limitations of her research include its homogeneous sample (White, middle- to upper-middle class families from California), the absence of a comparison group from non-divorced families, and the non-random sampling procedure (e.g., divorce counseling was offered as a participation incentive [8, 10, 11]). Furthermore, a significant proportion of the parents in the sample were noted to have personal histories of psychopathology [12].

At the 25-year follow-up, Wallerstein added to the original sample a comparison group of peers from the same community who were from non-divorced families [2, 13]. The addition of the comparison group addressed one methodological flaw of Wallerstein's research. Nevertheless, criticism of the conclusions drawn from her research remained. It has been argued that Wallerstein's depiction of long-term outcomes of parental divorce provides an unduly gloomy, negative and pessimistic view of parental divorce that paints a portrait of pathology [11, 14].

Hetherington and Kelly [15] emphasized that the negative long-term outcomes of parental divorce are exaggerated. Their findings from the Virginia Longitudinal Study of Divorce and Remarriage revealed that 25% of adult children from divorced families had serious psychological, emotional, or social problems in comparison to 10% of adults with continuously married parents. In other words, 75% of those who experienced childhood divorce showed positive adaptation in adulthood. When children from divorced families do not endure additional adversity, the overwhelming majority are able to cope and emerge as competent, responsible, well-adjusted adults [16]. Lansford [17] similarly summarized in her review of the literature that most individuals who experience parental divorce in childhood do not exhibit long-term negative consequences. Amato asserted that while the body of research supports the conclusion that parental divorce elevates the risk for multiple adverse outcomes for children throughout the life course, the effects are not as dramatic or pervasive as Wallerstein suggested. Rather, he concluded that the research evidence supports a moderate version of Wallerstein's perspective [8].

In the decades that have followed the initial identification of the sleeper effect, the research literature on the long-term effects of parental divorce has expanded considerably. Furthermore, through the use of carefully crafted, sophisticated methodologies, this body of research has provided a much more complex and nuanced perspective on the impact of parental divorce across the life course [11, 17]. Examination of research on the long-term effects of parental divorce follows, with a focus on three outcomes frequently identified in the literature: intimate relationships, psychological well-being, and parent-child relationships.

Parental Divorce and Intimate Relationships

Research indicates that differences in adjustment between adults from divorced and non-divorced families are often found in the realm of intimate relationships [18]. Indeed, the domain of development most frequently identified as being influenced by the sleeper effect is that of intimate relationships in adulthood. As Wallerstein [19] described:

- The central finding of our study is that, at adulthood, the experience of having been through parental divorce as a child impacts detrimentally on the capacity to love and be loved within a lasting, committed relationship. At young adulthood, when love, sexual intimacy, commitment and marriage take center stage, children of divorce are haunted by the ghosts of their parents' divorce and terrified that the same fate awaits them. These fears, which crescendo at young adulthood, impede their developmental progress into full adulthood. Many eventually overcome their fears, but the struggle to do so is painful and can consume a decade or more of their lives. (p. 410)

Wallerstein [13] reported that at the 25-year follow-up, when participants were between the ages of 28–43, 60% of the women and 40% of the men had established enduring, gratifying, and sexually satisfying relationships. She noted that some of the men appeared to avoid intimate relationships, as 42% had never married or cohabited for more than six months, whereas this was true for only 6% of men in the comparison group. In contrast, all of the women from both the divorced and non-divorced groups had been involved in brief or enduring intimate relationships.

Research which has examined intimate relationship attitudes and behaviors has provided further insight into the romantic relationship adjustment of individuals from divorced families. Adult children of divorce have been shown to display more anxious and avoidant attachments in their intimate relationships when compared to adults from intact families [20, 21]. Furthermore, adult

children from divorced families report more insecurity within intimate relationships and a substantially higher incidence of trust related issues [21]. A qualitative investigation of young adults from divorced families revealed that many participants were cautious about marriage, feared they would make the same relationship mistakes as their parents, and worried about having feelings of rejection if they were to experience betrayal by their partners. These relationship fears were especially apparent among those who described distant and unsupportive parental relationships following divorce [22]. In contrast, paternal involvement has been found to ease some of these fears, as high paternal involvement predicted high levels of intimacy, commitment, and trust in intimate relationships for young adults from both divorced and non-divorced families [21].

Existing evidence indicates that individuals from divorced families are more likely to experience earlier transitions into intimate relationship behaviors and experiences. For example, individuals from divorced families initiate sexual activity at an earlier age than do those from non-divorced families [6], and they also are more likely to report having had more sexual partners [18]. A pattern of earlier intimate relationship involvement is also evident in the incidence of cohabitation. Utilizing data from the National Longitudinal Study of Adolescent Health, Ryan, Franzetta, Schelar, and Manlove [23] examined the impact of family structure history on the relationship formation behaviors of youth who were making the transition to adulthood in the late 1990s and early 2000s. They found that the more time youth spent living outside of a married, two biological-parent household, the greater the likelihood that they would form an early cohabiting union. Earlier age at marriage also is more likely among young adults from divorced families [24]. Interestingly, living in a stepfamily during childhood has been found to increase the likelihood of earlier marriage among young adults [23].

These earlier relationship transitions create risks for young adults from divorced families, as early age at marriage is one of the strongest predictors of divorce [25]. In regard to the intergenerational transmission of divorce, research reveals that adult children of divorce are twice as likely to divorce at some point during their marriage in comparison to those from intact homes [26]. In comparison to individuals from intact families, adult children of divorce are more likely to divorce when experiencing relationship problems than they are to work on issues within the relationship [26]. This may be due to the belief that commitments can be easily terminated when the relationship is no longer satisfying, which is evident

from the pro-divorce attitudes and high rates of cohabitation and divorce among adult children of divorce [3, 25]. In comparison to men, women who experience childhood divorce are more likely to have marriages that end in divorce [3].

Other research posits that later relationship difficulties for adults who experienced divorce during childhood may not be directly attributable to parental divorce *per se*, but to the amount of conflict within the home before, during, and after the divorce. As Amato [25] described, this may be due to a lack of positive relationship modeling by parents in unhealthy, affectionless, or high conflict marriages, which may contribute to maladaptive interpersonal communication issues for adult children from divorced families. Amato found that in comparison to adults whose parents had remained continuously married, adults whose parents had divorced were more likely to have interpersonal styles characterized by problematic communication, anger, and jealousy. These interpersonal difficulties, in turn, were found to elevate the risk for divorce.

Hetherington [18] used data from the long-term Virginia Longitudinal Study of Divorce and Remarriage to examine the impact of both parental divorce and marital conflict (without divorce) in the family of origin on marital instability in young adult offspring. She concluded that while both marital conflict and parental divorce contributed to offspring marital instability, the effects were greater for parental divorce. Furthermore, the greatest marital instability was observed among couples where both partners came from divorced families, and the difference in marital stability in that group as compared to couples where both partners came from low conflict non-divorced families was striking. However, it is essential to recognize that intimate relationship difficulties among adults from divorced families are not inevitable. In particular, Hetherington [18] found that having a supportive, well-adjusted partner was a protective factor, eliminating the difference in marital instability between participants from divorced and non-divorced families.

Parental Divorce and Psychological Well-Being

A range of adult psychological adjustment outcomes have been identified as being impacted by the earlier experience of parental divorce, with effects evident on measures of specific mental health indicators such as depression and anxiety, as well as for more global assessments of psychological well-being [3]. The focus of the review here will not be on articulating the effects of parental divorce on specific indicators of psychological adjustment.

Rather, the emphasis will be on detailing the impact of divorce on psychological well-being more generally as evident in long-term longitudinal studies that have spanned decades. These longitudinal studies have helped to disentangle the complexity of effects of parental divorce on psychological well-being in adulthood.

Utilizing data from the Marital Instability Over the Life Course (MIOLC) study, Amato [8] was able to examine the psychological well-being of adults from divorced and non-divorced families, and to consider the impact of parent factors by drawing from data collected from the parents in an earlier wave of the study. Amato found that parental divorce lowered the psychological well-being of 10% of his sample [8]. In other words, 90% of adult children who experienced childhood divorce showed levels of well-being comparable to adult children from non-divorced families. Amato noted that his results suggested that divorce does not appear to reduce the percentage of children who reach adulthood with positive psychological well-being. Rather, parental divorce appears to shift some children from average psychological well-being to low psychological well-being.

Interestingly, a couple of different factors appeared to moderate the effects of parental divorce on psychological well-being in Amato's study. First, when parents reported low levels of marital discord, adult children of divorced parents had poorer psychological well-being than did their counterparts with continuously married parents. However, when parents reported high levels of marital discord, adult children of divorced parents had better psychological well-being than did those with continuously married parents [8]. These findings are consistent with the position that when children are exposed to chronic parental discord, they may be better off if their parents divorce. In contrast, when parents exhibit low levels of marital discord, the parental divorce may create more of a jolt for children, who may view it as an unexpected event. The second factor that moderated effects of divorce on psychological well-being was the number of family transitions that offspring experienced (i.e., parental divorces and remarriages), where more transitions were linked to lower psychological well-being. These results suggest that the accumulation of family transitions contributes to the negative effects of parental divorce.

Chase-Lansdale, Cherlin, and Kiernan [27] used longitudinal data gathered in Great Britain from the National Child Development Study to examine the long-term effects of parental divorce on the mental health of young adults (age 23). They found moderate, negative consequences of parental divorce for both men and women. Specifically, they found that the likelihood of scoring above the clinical

cutoff on the Malaise Inventory was 8% for young adults who had not experienced parental divorce and 11% for those who had experienced parental divorce. These authors concluded that while divorce raised the risk of serious emotional disorders, the large majority of individuals from divorced families did not exhibit these risks. Nevertheless, the effects on the subgroup seriously affected by divorce should not be discounted, as the proportional increase in those who may seek clinical intervention is noteworthy.

Again drawing from the National Child Development Study, Cherlin, Chase-Lansdale, and McRae [5] examined the effects of parental divorce on mental health at age 33. The authors noted that prior to parental divorce, more internalizing and externalizing symptoms were evident among individuals whose parents eventually divorced in comparison to those from non-divorced families. However, the results also indicated that parental divorce itself contributed to higher levels of internalizing and externalizing problems in adulthood. Furthermore, what is particularly noteworthy in these findings is that the gap in emotional problems between those from divorced and non-divorced families widened in adulthood. These results are consistent with the notion of a sleeper effect, whereby adjustment problems surface in adulthood. The authors suggested that parental divorce may set into motion a chain of events such as early childbearing or limited education that contribute to continued divergence in the life course for those from divorced and non-divorced families.

In summary, the results of the available body of research provide evidence for the potential for parental divorce to have long-term negative consequences on offspring psychological well-being. However, when combined with the findings of Hetherington and Kelly [15] described earlier (i.e., that 75% of adults from divorced families exhibit positive adjustment), the clear message from the research summarized here is that the majority of adult children from divorced families experience positive psychological well-being. Nevertheless, due to the small, but real elevated risk for psychological difficulties for adults from divorced families in comparison to those from non-divorced families, the impact of the divorce experience on lives of those experiencing adjustment difficulties should not be minimized.

Parental Divorce and Parent–Child Relations

As noted by Ahrons [10], parent–child relationships persist throughout the life course, and consequently, parental divorce can potentially alter parent–child relationships at any developmental transition. The available evidence

indicates that parental divorce creates the greatest long-term risks for the father–child relationship. Relationships between adult children and their divorced mothers are closer than those between adult children and their divorced fathers. Furthermore, adult daughters are closer to their divorced mothers than are adult sons, and sons report somewhat more closeness to their divorced fathers than do daughters [16]. In his examination of multiple long-term outcomes of parental divorce, Amato [8] concluded that the strongest impact is on father–child relationships, where parental divorce results in poorer quality father–child relationships for approximately one-third of adult children.

Again using data from the MIOLC study, Amato [7] examined the effects of marital discord and divorce on adult children's parent–child relationships for individuals in both divorced and non-divorced families. Compared to children with continuously married low discord parents, children who experienced parental divorce reported less closeness to both their mothers and their fathers. It should be noted that children with continuously married, high discord parents also had weaker ties with fathers (but not with mothers). Additionally, the negative effects of parental divorce on father–child relationships were stronger for daughters than for sons. Children with divorced parents also had significantly poorer father–child relationships than did those children with continuously married high discord parents.

Scott, Booth, King, and Johnson [28] examined patterns of change in father–child closeness following divorce in the National Longitudinal Study of Adolescent Health, tracking youth from adolescence to young adulthood. They found that 57% of participants experienced a decline in father–child closeness over this time period. However, 25% of the participants maintained close father–child relationships, and 14% reported increased closeness with their fathers over this time period. Those participants who maintained a close father–child relationship had a stronger mother–child relationship and a greater sense of well-being prior to the divorce. Interestingly, those who experienced an increase in father closeness were less likely to have pursued education beyond high school, and were more likely to have experienced their own family transitions such as cohabitation and parenthood.

Drawing from data collected from the longitudinal Binuclear Family Study, Ahrons [10] examined family ties among adult children who were interviewed 20 years after their parents' divorce. The majority of these adult children reported that their parents currently got along with each other fairly well. Furthermore, when parents were more cooperative with each other, their adult

children reported better relationships with their parents, as well as with their grandparents, stepparents, and siblings. The desire for their parents to get along with each other was clearly evident among these adult children – they wanted parents to be cordial with each other in order that both parents could share in important events in the adult child's life, such as graduations, weddings, and the birthdays of grandchildren. Ahrons concluded that when parents are able to minimize their conflicts and co-parent effectively, their adult children are able to maintain their relationships with both parents.

The living arrangements that are established following parental divorce are important to take into consideration in efforts to understand the relationship dynamics between adult children and their fathers in divorced families. Although historically there has been an increase in shared custody arrangements in the United States, much of the available research conducted over the years has centered on families where mothers had custody and fathers were the non-residential parents [24]. Contact with non-residential fathers has been found to decrease over time [24], which can pose risks to the maintenance of strong father–child relationships.

Fabricius [29] considered the issue of living arrangements in his study of college students from divorced families. He found that these students endorsed living arrangements that would give them equal time with each parent, and the majority of the participants also believed that equal time with each parents was best for children. Furthermore, those individuals who reported having living arrangements that gave them equal time with both of their parents or a lot of time with their fathers had high quality relationships with both their mothers and fathers.

Additional findings point to the significance of both post-divorce living arrangements and parent–child conflict for father–child relationships. Specifically, the more time college students reported living with their fathers after divorce, the better their relationships were with their fathers, independent of parental conflict. In contrast, the more parental conflict they experienced, the worse their father–child relationships were, independent of time spent with father [30]. Hearing adult children's perspectives on living arrangements in these two studies sheds additional light on the importance of maintaining father–child relationships post-divorce, as revealed in the viewpoints of the children themselves.

In summary, the research reviewed here portrays a complex picture of the impact of parental divorce on parent–child relationships in adulthood. Clearly, the literature to date shows that the father–child relationship is most adversely affected by parental divorce. However,

when parents are able to put aside their conflicts and co-parent effectively, positive benefits accrue for parent–child relationships. The significance of positive parent–child relationships is further underscored when the literature previously described on intimate relationships and psychological well-being is considered. It is apparent that these outcomes are all interrelated (e.g., high quality parent–child relationships are linked to positive intimate relationship adjustment).

These findings also highlight the life-long significance of the parent–child bond. Whereas most of the available literature has focused on the effects of parental divorce on parent–child relationships in young adulthood, recent research suggests that the consequences can extend later into the life course, when adult children from divorced families deal with issues such as caring for an aging parent. For example, Lin [31] found that although adult children with divorced parents were just as likely as adult children of widowed parents to provide care and financial assistance to mothers, those from divorced families were less likely to provide care for their fathers.

Conclusions

Examination of the available literature published during the last two decades on the long-term effects divorce provides some support for the existence of a sleeper effect of parental divorce, with consequences apparent for outcomes including intimate relationships, psychological well-being, and parent–child relationships. However, the strongest message that should be taken away from this analysis of the research is that the overwhelming majority of adults from divorced families show positive adaption in their adult years. Furthermore, it is important to note the limitations of this literature, as long-term longitudinal examination of outcomes of parental divorce requires decades of research. Consequently, it is important to be mindful of cohort effects, as the experience of parental divorce in the 1970s and 1980s is likely very different than today, due to changes in divorce laws and policies, the decreased stigma associated with parental divorce, and changes in family structure more generally [10]. Even so, findings from the most recent longitudinal study cited in this review (i.e., the National Longitudinal Study of Adolescent Health) are generally consistent with findings from earlier studies.

Nevertheless, acknowledging the potential significance of young adulthood for individuals from divorced families is important. As Amato [7] noted, early adulthood is a critical stage in the life course. It is a time when young people make important life decisions about education, marriage, and parenthood that can have enduring effects

on their lives. Amato further suggested that many young people are able seek guidance and support from parents as they contemplate these major life transitions. Unfortunately, youth from troubled divorced families might be at a disadvantage due to the possibility that they have weaker ties with their parents.

Wallerstein and Lewis [13] contend that parental divorce is a “life-transforming experience” (p. 367). Without a doubt, the effects of parental divorce continue to echo across the life course. Nevertheless, it would be misguided to overemphasize the consequences of the dissolution of their parents’ marriage for the life course outcomes of adult offspring. Viewing parental divorce from a problem-focused “►Child of Divorce” paradigm can create fear, restrict possibilities and become a self-fulfilling prophecy for children and parents from divorced families [32]. Furthermore, Kelly and Emery [11] make the important distinction between painful memories of divorce and pathology. As young adults recall their parents’ divorce, they may describe painful memories, and this is to be expected given the stressors associated with parental divorce. However, painful memories do not preclude positive adjustment – we need to recognize that lingering painful childhood recollections and adaptive functioning in adulthood can coexist. Most importantly, those who intervene with divorced families should work towards fostering protective factors known to promote resilience in both children and adults from divorced families [24]. When children from divorced families have involved parents and positive parent–child relationships, when they receive good parenting including positive co-parenting, and when they experience low parent conflict, their long-term developmental outcomes are likely to be characterized by positive adjustment.

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Sleeper Influence

► Sleeper Effect of Divorce

Sleeping Pills

► Anxiolytics/Hypnotics

Sleeping Pills (e.g., Ambien, Lunesta, Sonata)

► Depressants

Smacking

► Spanking

Smoking

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Definition

Tobacco smoking is the inhaling and exhalation of the fumes of burning tobacco which contains nicotine.

Description

Cigarette smoking is one of the most popular and persistent habits of our society. According to the American Cancer Society, each day more than 3,500 people under the age of 18 try their first cigarette, and approximately one-third will become regular daily smokers and will eventually die from a smoking-related disease. Children of smokers are much more likely to become smokers themselves as a result of observing their parents smoking and viewing their behavior as the social norm. Given that cigarette smoking remains the leading cause of preventable deaths, the decision made to smoke during the teen years has long-term consequences. Many teens begin smoking with the expectation that they will soon quit the habit but the addictive nature of nicotine leads most to continue the habit for decades. Addiction to nicotine is a common consequence of tobacco use. Nicotine addiction in teenagers is as severe as that in adults. Physiological and psychological symptoms include; hunger, dizziness, difficulty concentrating, irritability and craving for cigarettes. They also have similar difficulty in quitting tobacco as adults. Ninety percent of those who will become regular smokers start smoking before age 19 years. Knowledge of the long-term health consequences of smoking has not been a strong deterrent for use among teens, as they start smoking with recognition of the health risks but believe that they will be able to quit smoking before the health consequences become serious. There are a number of environmental factors linked to teen smoking, including parents, siblings and peers who smoke; exposure to tobacco advertising; and the portrayal of tobacco use in the media. Teens also experiment with smoking for a variety of psychosocial reasons: they want to change their self-image, look tough or grown-up, or because most of their friends smoke. Peer acceptance is a major factor for youthful smoking. Further, unlike many other drugs, nicotine enhances rather than impairs the capacity of normal people to function, and they experience primarily the pleasurable effects of smoking.

Relevance to Childhood Development

Smoking is a major health hazard to infants, children, adolescents, and their families. The U.S. Surgeon General warns that cigarette smoking is as addictive as cocaine and heroin. Research suggests that children who thought addiction happened immediately were committed to never smoke at all. Thus, the fear of addiction could be a protective factor in prevention efforts. Treatment programs for smoking have not been very successful. Three out of four smokers either wish to or have tried to stop smoking, and continue simply because they find it difficult to quit.

Supportive counseling and group interventions have been shown to be an effective part of a comprehensive nicotine treatment programs for teens. However, protective factors such as close communication with parents, high self-esteem, assertiveness, school success, social competence, and a strong sense of right and wrong, can prevent teens from smoking.

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Snicker

► Laughter

Social Adjustment

► Global Assessment of Functioning Scales

Social Aggression

► Relational Aggression

Social Anxiety

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Synonyms

Behavioral inhibition; Excessive shyness; Social phobia

Definition

Social ►anxiety refers to an experience of anxiety (e.g., emotional discomfort, fear, apprehension or worry) regarding social situations, and the potential for evaluation in these situations.

Description

Social anxiety generally consists of three constructs: fear of negative evaluation, general social avoidance and distress, and social avoidance and distress in new situations [13]. Children with social anxiety are often mislabeled as shy (reticent in social situations). In fact, there is much overlap between social anxiety and shyness; children with either may experience similar somatic responses in social situations (e.g., heart palpitations, sweating, trembling, blushing) and similar negative cognitions (fear of negative evaluation, or of being embarrassed or humiliated). Yet, shyness that is excessive to the point of functional impairment becomes social phobia, or social anxiety disorder. It should be noted that the majority of those with social anxiety disorder have reported childhood shyness, but that shyness is not a necessary condition for the disorder [5]. The *DSM-IV* criteria that a child or adolescent must meet in order to be diagnosed with social anxiety disorder are the following: (1) a chronic, excessive fear of social or performance situations that the child fears will be embarrassing (anxiety must occur in peer settings); (2) the fear of social situations almost always triggers an anxious response; (3) the feared social situations are avoided or endured with great distress; (4) the fear or avoidance must cause significant impairment in functioning; (5) the fear or avoidance is not better explained by medication, medical condition, or other mental disorder; and (6) the symptoms must be present for at least 6 months [2].

Social anxiety disorder is one of the most prevalent childhood psychological disorders. Children may be affected with social anxiety disorder as young as 6 years of age, and the average age of onset is between 11 and 12 years of age. The course of social anxiety, if not treated, can be chronic and persist into adulthood. In addition to somatic complaints, children and adolescents may also present symptoms of irritability, crying, freezing in social situations, and inflexible temperamental styles. Children and adolescents with social anxiety disorder often exhibit comorbid disorders, the most common of which are attention-deficit/hyperactivity disorder, depression, and substance use disorders [6].

There are several theories, but no definitive explanation for how social anxiety develops in children and adolescents. From a biological view, genetics plays a role; 16%

of relatives of those with social anxiety disorder also have the disorder compared with 5% of relatives with no psychiatric disorders [9]. Children that have the early appearing behavioral characteristic of ►**behavioral inhibition** are more likely to develop social anxiety disorder than those that do not. Behavioral inhibition has been linked to higher epinephrine activity and higher heart rates in novel social situations [12]. Some evidence suggests that behavioral inhibition is a genetic trait that runs in families; parents of children with social anxiety disorder have been shown to be more likely to have behavioral inhibition than the parents of children without the disorder [15]. Furthermore, studies have shown that those with high social anxiety levels have increased activity in the amygdala when presented with novel faces or faces with neutral expressions [7].

Several environmental factors may also contribute to the development of social anxiety. Along with peer rejection and victimization experiences, other life experiences that have been linked to the development of social anxiety are traumatic conditioning after experiencing panic in a social-evaluative situation [4], and maladaptive familial environments, particularly with high levels of parental criticism and overcontrol [18]. With regards to parenting behaviors, an anxious-resistant attachment is a risk factor for social anxiety disorder, while maternal warmth and secure attachment are associated with children who form healthy peer relationships [3]. Parental anxiety, rejection, and overprotection are all associated with social anxiety disorder in children and adolescents. Children may learn their parent's anxious behaviors through observational learning. Furthermore, overprotective parents may limit their children's ability to engage in social situations, thus setting up a pattern of social isolation and avoidance [5].

In most cases a combination of factors is likely present, including a biological vulnerability to anxiety and other environmental and psychological stresses that contribute to the development of social anxiety disorder [5]. For example, one theory is that social anxiety may be due to a biological predisposition for behavioral inhibition, which leads to a failure to establish peer relationships that help one to develop appropriate social skills. Lack of social skills and/or friendships cause further anxiety, insecurity, and withdrawal from social situations [17].

Concerning treatment for social anxiety, many children go without ever receiving help because they do not "act out," and thus teachers and parents may not recognize their level of discomfort. Similarly, social anxiety in adolescence is often overlooked as normal teen social insecurity. One of the most common and effective treatments for

social anxiety is ►**cognitive-behavioral therapy** (CBT). CBT targets three components of anxiety: physiological, cognitive, and behavioral. The physiological component is addressed through relaxation techniques. The cognitive component may include teaching children how to use constructive rather than negative self-statements. The behavioral component involves systematic desensitization to feared stimuli through imaginal as well as in vivo exposure. Some CBT treatments for social anxiety add a social skills training segment into the program. Another treatment option that has proven to be effective for social anxiety disorder is the use of psychotropic medications, including ►**selective serotonin reuptake inhibitors** (SSRIs) and tricyclic anti-depressants. The SSRIs are generally the preferred drug for treating anxiety in youth [10]. The choice to use one modality (medication or therapy) over the other, or to use combined treatment, often relies on clinical judgment about individual patients. For severe cases of social anxiety in youth, a combined treatment of medication and therapy is generally used in order to increase the probability of a positive outcome [10].

Relevance to Childhood Development

Social anxiety can hinder a child's social, emotional, and cognitive (academic) development. Children with social anxiety have difficulty participating in typical classroom and school activities. They may struggle with speaking in front of the class, eating in the cafeteria, or using the public restroom. In many cases, children with social anxiety will refuse to go to school. They will often avoid social situations like talking on the phone or in person with peers, joining sports teams or clubs, and having friends to their house to play. In fact, children with high levels of social anxiety generally report fewer friendships, and perceive themselves as having a lack of social support and intimate, close relationships [13]. Socially anxious children are also less well-liked, teased more frequently, and suffer more often from peer rejection and relational victimization than non-anxious children [11]. The relationship between peer neglect/rejection and social anxiety is bidirectional; peer neglect/rejection also contributes to increases in youths' social anxiety levels [11]. Studies indicate that the effects of social anxiety are cumulative and increasingly detrimental. In one study, social isolation at age 7 predicted low levels of social competence and self-worth, and high levels of loneliness, and peer-group insecurity at age 14 [16].

With the demonstrated close links between same- and other-sex relationships, it seems likely that social anxiety would also disrupt the development of other-sex friendships and subsequent romantic relationships.

Indeed, anxiety is associated with fewer date initiation behaviors and interactions with the other sex that in turn may delay entry into romantic relationships [8]. In an analysis of retrospective reports, individuals with a history of social anxiety reported acute feelings of self-consciousness during social situations in junior high school and had fewer dating partners than a comparison group between the ages of 12 and 21 [1]. Further reflecting developmental continuity, those teens that rarely date in adolescence tend to exhibit decreased social skills, social withdrawal, and romantic dysfunction later in adulthood [14].

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Social Anxiety Disorder

► Social Phobia

Social Cognition

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Synonyms

Social thinking

Definition

Social cognition refers to the ways in which individuals think about and process information relevant to their social interactions. This information includes the thoughts, feelings, motives, and behaviors of themselves and other people.

Description

Children's Theory of Mind

From very early in life, children have a *theory of mind*, which is an understanding that people have mental states, including desires, beliefs, and intentions. These mental states are not always accessible to others but serve to guide individuals behavior. As early as 2 months of

age, infants make distinctions between animate and inanimate objects, and by 6 months of age, babies know that humans behave differently toward people than toward inanimate objects. By 9 months of age, babies can discriminate between a person's positive versus negative intent (for example, offering a toy versus withholding a toy). Between nine and 12 months of age, babies begin to participate in joint attention activities in which they direct a partner's attention to objects or events. Such actions indicate that by the end of the first year, babies perceive that a social partner can understand and share their own perspectives. By 18 months of age, children can reason about other people's desires, and their behavior toward others tends to be influenced by their perceptions of these desires [13].

There are great advances in children's theory of mind between the ages of 2 and 5 years. Young children know that others cannot observe their thoughts, and that as a result they have access to information that others do not. By about 4 years of age, children understand that people are likely to act on the basis of false beliefs. Children may use their knowledge about false beliefs to their own advantage by deliberately deceiving their partner. They may give false clues about where an object is hidden or blame someone else for a transgression that they committed that was not witnessed by others [13].

Person Perception

With the development of theory of mind, children are gaining insights regarding other people's desires and beliefs. However, children continue to have much to learn about the personalities and behavioral tendencies of themselves and their social partners. Children younger than about 7 or 8 years of age tend to describe themselves and others in terms of concrete, observable features. Nevertheless, even though young children may not spontaneously use personality traits, they do show some psychological self-awareness. For example, children ages 3-1/2 to 5 years old do characterize themselves along psychological dimensions, such as aggressiveness and sociability, when asked to respond to forced choice options regarding their personality traits. Furthermore, their characterizations are stable over time [4]. In addition, even if preschoolers do not yet use personality traits when describing others, they do show an understanding of the ways in which their closest companions typically behave. By 5 years of age, children make trait-like inferences, for example assuming that someone who has been aggressive in past peer interactions will continue to be aggressive. Moreover, 4 and 5 year olds can use trait labels to predict others' trait-relevant behavior [9].

Between the ages of 7 and 16 years, children increase their use of personality traits when describing others, though they continue to include concrete attributes in their descriptions. Person perception becomes even more complex during adolescence, as individuals are increasingly aware that their own and others' behavior can be impacted by situational factors that may lead them to act "out of character" [13].

Social Perspective Taking

An important aspect of social cognition is being able to understand the social partner's point of view, including the partner's thoughts, feelings, beliefs, motives, and intentions. According to Selman [11], children develop social perspective taking skills across five stages. In the first stage, Egocentric or Undifferentiated Perspective Taking (approximately ages 3–6 years), children are generally egocentric and thus are not aware of any perspective other than their own. In the second stage, Social-Informational Role Taking (approximately 6–8 years), children begin to recognize that others can have different perspectives from their own but believe that this occurs only because these individuals have access to different information. In the third stage, Self-Reflective Role Taking (approximately 8–10 years), children recognize that their own and others' points of view may conflict even if they have received the same information. At this point, the child can consider the other person's point of view and can recognize that the partner also has an understanding of the child's point of view. However, the child has difficulty considering his own perspective and the perspective of the partner simultaneously. In the fourth stage, Mutual Role Taking (approximately 10–12 years), the child can consider his own perspective and that of the partner simultaneously and realizes that the partner can do the same. The child can also assume the perspective of a disinterested third party and anticipate how each person will react to one another. Finally, in the fifth stage, Societal Role Taking (age 12 and older), individuals expect others to consider and adopt perspectives that most people in their social group would assume. Children proceed through these stages of social perspective taking in a fixed order, though the rate at which they do so may vary based on cognitive skills and social experiences.

Adolescent Egocentrism

As adolescents become capable of formal operational thinking, in which they are able to reason about abstract concepts and hypothetical events, they often overextend this ability when thinking about themselves and their social world. This leads to adolescent egocentrism, where

the adolescent's thoughts may reflect a great deal of self-absorption. Adolescent egocentrism seems to contribute to two distinct types of thinking [5]. The *imaginary audience* is the belief, brought on by the heightened self-consciousness of adolescence, that everyone is watching and evaluating the adolescent's behavior. The adolescent has a sense of constantly being "on stage," and seems to think that others are as preoccupied with his or her appearance and behavior as he or she is. The second belief is the *personal fable*, in which the adolescent focuses on the uniqueness of oneself and one's thinking and tends to think that no one can possibly understand his or her experiences or emotions. The personal fable contributes to beliefs that one is invincible, and thus appears to play a role in adolescents' greater tendency to participate in risky behaviors given their propensity to believe that negative consequences could not possibly occur for them.

Models of Social-Cognitive Processing

In addition to studying general types of changes in social cognition across development, researchers have focused on individual differences in children's social cognition as they respond to specific types of social situations. Quite often social situations are ambiguous in nature, and individuals vary in their interpretations and motivations during social interactions. Indeed, individual differences in social-cognitive processing help to explain why children confronted with the same social situation, such as having milk spilled on them by a peer, may choose to act in very different ways (e.g., retaliating vs. cleaning up the mess). A variety of models have been proposed to describe specific social-cognitive processes that underlie children's behavioral choices, and several of the more prominent models are described below.

One of the most influential models of social-cognitive processing was proposed by Crick and Dodge [3]. According to this model, as individuals interact with others they bring to the situation their own social knowledge, schemas (e.g., scripts for how to deal with conflict), and a database of memories of past social experiences (e.g., memories of frequently being victimized by peers). They then receive as input a set of social cues (e.g., a peer tripping them), and their behavioral response is a function of how they process those cues. The model proposes that there are six steps of processing that occur: (1) encoding of external and internal cues, (2) interpretation of those cues, (3) selection of goals, (4) response access, (5) response decision, and (6) behavioral enactment. To illustrate, a child who is tripped by a peer and has a history of being victimized by peers may attribute the action to hostile intent rather than to accidental circumstances.

That child then selects a goal, perhaps retaliation or avoidance. The goal that is given priority is likely to influence the types of social responses generated (e.g., aggressive vs. passive behaviors). As children make a decision about how to respond, several social-cognitive constructs are likely to come into play. Children's self-efficacy perceptions are important, given that children are most likely to select behaviors they think they would be able to produce successfully. Outcome expectations also play a significant role, as children tend to choose behaviors they feel will result in a positive outcome. In addition, children should view the response as being appropriate according to their own moral rules or values (e.g., beliefs about the legitimacy of aggressive behavior). Thus, children who believe that they are good at being aggressive, that aggressive behavior will bring positive results, and that aggression is legitimate are quite apt to decide that aggressive behavior is an appropriate response.

Notably, the Crick and Dodge model is circular in nature, such that each step of processing may influence the others through a series of feedback loops. For example, whereas a child who attributes a protagonist's action to hostile intent may be more apt to select a retaliation goal, it is also possible that a child who generally gives high priority to retaliation goals (Step 3) may be especially primed to attribute any harm caused by the protagonist to hostile intent (Step 2). Notably, though each of the social-cognitive variables may predict behavior, behavior is best predicted by multiple variables.

Another important social-cognitive theory is Weiner's attribution theory [14]. This theory emphasizes that during social interactions, individuals are concerned with determining the perceived causes of behavior and events. Three underlying dimensions of causes are proposed. The first is *locus*, in which the individual must decide whether a cause is internal (e.g., lack of social ability) or external (e.g., bad mood of the interaction partner). The second dimension is *stability*, which identifies a cause as constant or changing over time. The third dimension is *controllability*, or whether a cause is subject to volitional influence. The attributions a person makes can have a strong impact on factors such as behavioral choices, expectancy of success, and emotion. For example, an individual who is not invited to participate in a special activity with peers may attribute this incident to external, stable, and uncontrollable factors. In turn, the individual may decide to withdraw socially, expect future rejection, and feel hopeless.

Selman's Interpersonal Negotiation Strategies (INS) model [12] asserts that four information processing issues are central as individuals engage in social problem solving. First, the individual must define the specific problem and

evaluate it in terms of the social relationship (i.e., whether the problem is a mutual one, or whether the focus is on one person). The second process focuses on the action to be taken (i.e., the strategy or strategies suggested to deal with the dilemma). The third process involves considering the consequences of the solution proposed, including consequences to the protagonist, the significant other, and the relationship between the two people. In the fourth process, the individual considers the effect of the solution on the emotions of those involved. According to this model, the individual's use of strategies may vary depending on the context (e.g., status difference between interaction partners, type of relationship).

Finally, Bandura's [1] self-efficacy theory proposes that individuals' level of confidence in their ability to successfully perform a certain behavior will impact whether they choose to enact that behavior, how much effort they will exert, and how long they will attempt the behavior in the face of challenge. Bandura asserts that expectations of personal efficacy come from four primary sources of information, including performance accomplishments, vicarious experience, verbal persuasion, and emotional arousal. Bandura distinguishes self-efficacy perceptions from outcome expectations, which are defined as an individual's estimate that a given behavior will result in a particular outcome. Indeed, although a person may believe that a specific behavior may lead to a certain consequence, that person may not think he or she could be successful at enacting that behavior. For example, the individual may believe that using negotiation strategies would result in the peaceful resolution of a conflict, but she may think that she is not a very effective negotiator. In contrast, a person may believe that she could effectively perform a behavior but may expect that action would not result in a desirable outcome. Ultimately, both self-efficacy perceptions and outcome expectations impact individuals' behavioral choices.

Each of these theoretical models highlights specific types of social-cognitive variables that may operate as individuals decide how to respond to social situations. The models differ in the specific variables they emphasize, but across these models various social-cognitive processes are viewed as playing significant roles in predicting individuals' social behavior. These variables include attributions of hostile intent, attributions for social success or failure, social goals, strategy knowledge, self-efficacy perceptions, outcome expectations, and beliefs about the legitimacy of aggression.

Relevance to Childhood Development

A great deal of research has shown that children's social-cognitive processes are related to their psychosocial

adjustment. Among young children, those who show more sophisticated knowledge about theory of mind display more advanced social skills and are more highly accepted by peers compared to age mates. Gains in person perception abilities across childhood into adolescence can contribute to greater understanding and intimacy in social relationships. In addition, children with more advanced social perspective taking skills are more likely to experience empathy for others and are more apt to engage in prosocial behavior [13]. Although advances in most social-cognitive processes are associated with positive outcomes, it should be noted that adolescents' strong endorsement of personal fable beliefs is correlated with a greater likelihood of engaging in risky behaviors, including dangerous driving and unprotected sexual interactions.

Children's social adjustment is also related to individual differences in their social-cognitive processes as they respond to specific types of social situations. Specifically, children who are aggressive and/or highly disliked by their peers tend to show a variety of social-cognitive deficits or distortions. For example, rejected-aggressive children are apt to display a tendency to make attributions of hostile intent and, in turn, to endorse aggressive responses to provocations [10]. Such behavior often leads to further rejection by peers (and reinforces children's interpretations that others have hostile intentions) and leaves children vulnerable to a variety of negative outcomes, including loneliness, depression, delinquency, and school dropout [8]. Other social-cognitive processes are similarly associated with maladaptive behavior and peer rejection. Aggressive children are more apt to endorse retaliation goals and tend to generate primarily aggressive responses. They tend to have high confidence in their ability to carry out aggressive behaviors and low self-efficacy regarding their ability to enact prosocial responses. Moreover, aggressive children expect positive outcomes for their use of aggression, including gaining material rewards, status, and power, and tend to have little regard for the suffering of their victim. Aggressive children also believe that their choice of aggressive behavior is morally legitimate [6].

Behaviorally withdrawn children similarly appear to have a specific social-cognitive profile that underlies their behavior. Like aggressive children, they may also show a hostile attributional bias, but they are more apt to endorse socially avoidant goals and strategies and think they are better at carrying out these behaviors than at being aggressive or prosocial [7]. Socially withdrawn behavior is often associated with being overlooked, or neglected, by peers during the childhood years. However, as children approach adolescence, withdrawn behavior is increasingly associated with overt rejection, and such rejection can

leave the child vulnerable to a variety of negative outcomes, including loneliness, depression, and social anxiety.

Research has shown that the most socially adjusted children are those who make attributions to accidental circumstances, endorse relationship-oriented goals, and select prosocial strategies [7]. Children who are better accepted by their peers tend to have high self-efficacy for their ability to act in prosocial ways and expect positive outcomes that will enhance relationships. Those children with more adaptive social-cognitive functioning tend to engage in more prosocial behavior. This behavior, in turn, contributes to greater acceptance by the peer group and a higher likelihood of being involved in friendships. These positive social experiences are associated with adaptive psychosocial adjustment.

Traditionally, social skills intervention programs have focused on teaching children specific social behaviors, such as sharing and initiating social interactions. Increasingly, however, intervention programs are beginning to target social-cognitive processes as well. For example, some interventions have focused on teaching children to make nonhostile attributions when the intent of the actor is ambiguous, to give higher priority to prosocial goals, and to generate more prosocial strategies [2]. By addressing the social-cognitive processes that underlie children's behavioral choices, children may be prompted to engage in more prosocial behavior that in turn will increase their acceptance in the peer group and decrease their risk for poor psychosocial adjustment.

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Social Cognitive Learning Theory

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Synonyms

Social learning theory

Definition

Albert Bandura's social cognitive theory conceptualizes cognitive, vicarious, self-regulatory, and self-reflective processes as they relate to human motivation and behavior.

Description

Social cognitive theory was founded on the social learning theory proposed by N. E. Miller and J. Dollard in 1941 [8]. Early social learning theorists were heavily influenced by behaviorism and drive reduction principles. In 1963 Albert Bandura and Richard Walters extended social learning theory by stressing that observational learning is a natural occurrence. They also stressed that reinforcement controls performance, not learning, and that learning can happen vicariously. Bandura's work also developed the importance of self-beliefs in learning behaviors. With the 1986 publication of his book *Social Foundations of Thought and Action: A Social Cognitive Theory* [2], Bandura made a clear distinction between his theory, which emphasizes the important role of cognition in human behavior, and other social learning theories [7].

Social cognitive theory is grounded in the belief that humans are unique in our ability to symbolize experiences, to develop forethought about consequences for our actions, to learn vicariously through the actions of others, to be able to change our behaviors through self-regulation, and to self-reflect. Bandura is most widely known for his contributions of reciprocal determinism [2] and self-efficacy [1].

Reciprocal Determinism

One unique contribution to the social-cognitive framework is the concept of *reciprocal determinism* (also called *triadic reciprocity*). Other theorists have speculated about the role personal factors (cognition, affect, and biological events) and environmental factors (both social and physical) play in the human behavior. However, Bandura's theory proposes complete interactionism among personal factors, behavior, and environmental factors, whereby people are both products and producers of their environments and social systems. In this model, not all sources of influence are equally strong. Additionally, the effects are not always seen immediately, but may develop over time (Fig. 1).

Self-Efficacy

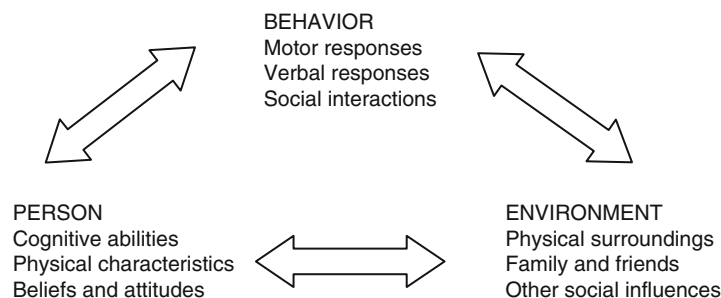
Self-efficacy beliefs are judgments people make about their ability to do something. Self-efficacy beliefs are not global – they are task-specific and may change depending on contextual factors. According to Bandura, “people’s level of motivation, affective states, and actions are based more on what they believe than on what is objectively true” ([5], p. 2). Self-efficacy beliefs are established through four sources of information and they are most easily shaped during the development of self-beliefs. It is much harder to change a person’s self-efficacy beliefs once they have become firmly established.

Mastery experiences provide the most authentic evidence of whether or not a person can perform a task. If a task has been successfully performed in the past, it

increases the likelihood that a person may be able to do it again in the future. How a person remembers experiences is also important. If a person selectively remembers the one mistake made in an event that was successful overall, it can negatively affect the person’s efficacy for that task. Alternately, remembering the accomplishments made in a task that was not successful can improve a person’s efficacy for the task. Mastery experiences and their interpretation are particularly important when developing self-efficacy for a task. However, once self-efficacy beliefs have become firmly established mastery experiences become less important.

Vicarious experiences allow a person to learn a novel behavior without performing it. Vicarious learning is less powerful than mastery experiences in creating self-efficacy beliefs, but it is useful when a person has little prior experience and when a person is unsure of their ability. In some cases, vicarious learning serves to protect people from harmful behaviors. For example, the consequences of a motorcycle accident in which the driver was not wearing a helmet or protective clothing is likely to affect the future safety behaviors of other motorcyclists who witnessed the event. In other cases, it allows us to learn situational social norms. For instance, weather to raise one’s hand in the classroom to get permission to use the restroom or if it is acceptable to discreetly leave without overt permission.

Vicarious learning also allows a person to assess their task capabilities in relation to the attainment of others. Self-efficacy for a task is most strongly influenced when the models are people relatively similar to one’s self. For example, watching someone else learn how to swim may increase a person’s belief that they too, can learn how to swim – particularly if there are other commonalities such as age and gender. This experience would likely have a stronger impact on one’s efficacy beliefs about learning to swim than watching Olympian Michael Phelps win a gold medal. Vicarious learning is also often referred to as modeling or observational learning.



Social Cognitive Learning Theory. Fig. 1 Reciprocal Determinism.

Social persuasion also contributes to the development of self-efficacy beliefs. This happens when other people provide verbal judgments about one's ability. When others cultivate positive beliefs combined with realistic assessments of success, the social persuasion can encourage positive self-efficacy beliefs. However, negative appraisals can serve to weaken self-efficacy beliefs as well.

Physiological and affective states, including anxiety, stress, and moods also provide information about efficacy beliefs because they provide cues about anticipated success or failure. Low self-perceptions may trigger more stress or anxiety about a performance, which can lead to a negative outcome. Negative affective states also divide a person's focus. By focusing on feelings such as an upset stomach or tension, focus is directed inward and taken away from task performance. Alternately, if a person feels confident in their ability to perform a task, they are likely to have lower stress and anxiety and be able to focus completely on the task without diverting attention to inner feelings.

It is the combination of the information and interpretation (e.g., symbolization, self-reflection) of that information that contribute to judgments of self-efficacy.

Relevance to Childhood Development

Social cognitive theory continues to be a useful lens through which to explore child development and provides an alternate explanation to Piaget's stage theory of cognitive development. Social cognitive theory uses reciprocal determinism as a way to explore cognitive and linguistic aspects of development. It also contributes to the fields of cognitive-behavioral therapy and healthcare [4, 6].

Bandura's famous bobo doll experiment in the early 1960s demonstrated the powerful effect of behavior modeling on children. The experiment demonstrated that children who witnessed aggressive behaviors by adults (particularly when the aggression was demonstrated by the same gendered adult) were more likely to demonstrate those behaviors than children who did not witness aggressive behaviors. Currently, Bandura's work is often used as a foundation for research on violence in the media. He asserts, however, that the social impact of observational learning is largely a function of a person's exposure to other information about reality. The more a person's image of reality depends on the media's symbolic environment, the greater the social impact [3, 9].

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Social Communication

►Pragmatics

Social Competence

►Conformity Among Adolescents

Social Construction of Memory

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Definition

Theoretical perspective in which memory is created by collaborating with and observing others.

Description

Social construction of memory has its roots in social cognitive theory that includes a blend of ideas from behaviorism and cognitive psychology. Albert Bandura [4–6, 8–10] is the main architect of the theory as it pertains to learning, and he explains that when students learn, they cognitively represent or transform their experiences. Five major assumptions of social cognitive learning include learning by observing, learning as an internal process that may or may not be reflected in behavior, goal directed behavior, self-regulated behavior, and indirect effects of reinforcement and punishment [15]. According to social

cognitive theorists (e.g., [3, 4]), both reinforcement and punishment influence learning, behavior and memory in several ways.

First, children form expectations about the likely consequences of future responses based on how they remember previous responses as reinforced or punished. Secondly, children's expectations are influenced by their observations of the consequences that follow other people's behaviors, in other words, by vicarious experiences. These expectations or memories regarding probable future consequences affect how children cognitively process new information and store it into memory. These memories alter children's expectations and also influence their decisions about how to behave.

Some examples of social cognitive learning that create memories in children include observational learning and/or modeling.

Observational learning involves acquiring skills, strategies, and beliefs by observing others. It involves imitation but is not limited to it. What is retained or remembered typically is not an exact copy of what is modeled, but rather a general strategy that the observer often applies. The capacity to learn behavior patterns by observation and modeling eliminates trial-and-error learning. Models can be live or symbolic, and teach children all sorts of behaviors. Considerable research has been conducted concerning the impact of modeling in three areas: academic skills, aggression, and morality.

Academic skills are learned by children more effectively when others demonstrate how to do something and how to think about something. In other words, a teacher might use cognitive modeling to show the thinking processes involved in a long division problem, thus making the information more meaningful and easier to retrieve from memory later on.

Numerous studies indicate that children become more aggressive when they observe aggressive or violent models [2, 12, 13]. Whether children learn aggression from live or symbolic models they see in person, or in films, on television, or in video games [1], their imitations take the remembered forms as the aggression they have seen and processed [7, 14].

Many aspects of moral thinking and behavior are influenced by observation and modeling. Children watch, retain to memory, and mimic examples of moral judgment, sympathy, sharing, and generosity [11]. Children who watch generous models are more likely to donate their time or possessions than children who observe selfish models. Even in cases where an experiment is repeated months afterward, children repeat the behavior from the initial session because it has been committed to memory.

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Social Constructionist

► Family Therapist

Social Constructivism

► Constructivist Psychotherapy

Social Decision Making

- Social Problem Solving

Social Discourse

- Pragmatics

Social Environment

- Classroom Climate

Social Group

- Peer Group

Social Identity

- Identity

Social Influence

- Conformity Among Adolescents

Social Information Processing

- Social Problem Solving

Social Intelligence

- Emotional Intelligence

Social Language

- Pragmatics

Social Learning

- Learning

Social Learning Theory

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Synonyms

Imitation; Modeling; Media influence; Observational learning; Social cognitive learning theory

Definition

Social learning theory states that norms, attitudes, expectations, and beliefs arise from an interaction with the cultural or social environment around an individual.

Description

Albert Bandura, the leading theorist in social learning theory, proposed that people learn from their observations of individuals or models. Bandura believed that behavioral theories presuming that environment determines one's behavior were too simplistic in nature. In response he presented the idea of reciprocal determinism, meaning the environment and one's behavior cause each other. As the theory developed the term prosocial behavior was coined. Prosocial behavior has been defined by theorists as "helping behavior that benefits others" [3]. The premise behind social learning theory, unlike operant or classical conditioning, is that the behavior does not have to be performed or reinforced directly for others to benefit from the positive reinforcement. Children learn behavior by observing others or ►models, and if the models receive positive reinforcement for their actions, the observers seek to imitate the behavior in order to obtain the positive rewards as well. However, the behavior modeled does not have to be positive for the observer to imitate it. Positive *and* negative behavior can be socially learned. In order for the behavior to be repeated several conditions are necessary. First, the

observer must pay attention to the behavior of the model. Secondly, the observer must recall or remember the behavior. Subsequently, the observer must reproduce the behavior accurately and finally the observer must be motivated to learn and carry out the behavior.

Current Research

While in the past Bandura's theory has primarily been applied to parents, teachers, peers and other authority figures as models, one of the greatest sources for observational learning is the media. For example, studies have found that the concept of social learning is at play in the smoking behaviors of adolescents. According to a study by [2], a correlation between smoking in the movies and adolescent smoking behaviors exists. Additionally, images in the media are modeling certain behaviors that are proving to be detrimental to teenage girls and in some instances boys. Numerous studies have been conducted on the influence of the media on body image. [7], found that "exposure to idealized images (in the media) led to increased body shame and appearance anxiety" (p. 89). In sum, current literature clearly indicates that the media significantly influences society in various facets of life ranging from smoking to body image.

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Social Perspective Coordination

► Perspective-Taking

Social Phobia

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Synonyms

Social anxiety; Social anxiety disorder

Definition

According to DSM IV [3] social anxiety disorder is "a marked and persistent fear of one or more social performance situations in which the person is exposed to unfamiliar people or possible scrutiny by others." It is a disorder with a very broad range of implications as most of our daily activities revolve around social encounters. It is especially debilitating because seemingly routine tasks become an ordeal for the individuals suffering from the disorder.

Description

Social phobia is a common disorder with vast implications; its effects range from interpersonal problems to inability to meet developmental milestones. The socially anxious youth struggle with the inherent anxiety as well as the social implications of their anxious behavior.

Ford [6] in a personal account of social phobia described her experience in the following way

- In first period chemistry, I was up to my ears in dread-dread of having to say 'here' when my name was called, of getting back yesterday's assignment, of looking as if I didn't fit in. I glanced around the room to compare my notebook, pencils, clothes, jewelry, hairstyle, backpack, and pile of textbooks with everyone else's. The corners of my notebook lacked the lazy scribbles from a friend.

Imagine a young person going through the day this way with a pervasive sense that all eyes are on her. Socially phobic youngsters believe they are on display and any mistake or flaw is readily apparent. Further, they predict that others will ridicule, embarrass, and humiliate them due to this flaw. It is like stage fright gone terribly awry. Indeed, this is a distressing experience.

Social phobia is a prevalent and debilitating condition. Beidel and Turner [5] report prevalence rates of approximately 8% for children and 4% for adolescents. Additionally, they cited data indicating that between 15 and 18% of

children referred to an anxiety disorder clinic were diagnosed with social phobia. Social phobia transcends normal shyness and is marked by young people's profound dread of social/performance situations where unfamiliar people are present and may negatively evaluate them. Finally, social phobia compromises children's emotional well-being, completion of developmental tasks, and academic achievement.

Signs and Symptoms

The DSM-IV [3] defines the essential feature of social phobia as "marked and persistent fear of social and performance situations in which embarrassment may occur." Social phobia may be specific or generalized in which case fears are related to most social situations. Thus the symptom profile is vast and encompasses a large variety of presentation styles. For the purpose of clarification, the symptoms are divided into the following categories:

Physiological/biological: Socially anxious youth experience somatic arousal while engaging in or anticipating social encounters. The salient features are physical symptoms such as heart palpitations, flushing or chills, trembling, sweating, blushing, fainting, shaking and headaches; mediated by the beta-adrenergic system [9].

Behavioral: Behavioral symptoms include hallmark avoidance behaviors such as shying away from typical childhood activities (parties, dating, sports, school, clubs, etc.). Avoidance behaviors may be overt, dramatic or subtle. Generally unstructured social and/or evaluative situations and encounters precipitate avoidance behaviors [1]. These may include refusal or avoidance of eating or drinking in public, initiating or maintaining conversation, and avoiding using public restrooms. Moreover, worry about taking tests, giving oral reports in the classroom, participating in gym as well as working in groups is typical behavior for these children and adolescents [6]. Socially anxious youth are reluctant to seek help from their peers or teachers [1]. Other likely behavioral manifestations include stuttering, poor eye contact, mumbling, nail biting, and a tremulous voice. Socially anxious youth frequently avoid answering the telephone or doorbell [1]. Moreover, many children and adolescents preoccupy themselves with hobbies reflecting isolative interests which are different from those of their peers. Finally, children with severe social fears act stubbornly, oppositional, non-compliant, and occasionally they become outright defiant [9].

Cognitive: Cognitive content reflects the way youngsters mentally package their experiences. Fears of negative evaluation mark socially anxious youth's cognitive content.

They predict others will harshly judge them ("They will think I am a dork") and dread potential embarrassment / humiliation ("They'll see me blush and mock me"). Cognitive content may include thoughts of escape from the social situation ("The best way to cope with my anxiety is avoid it"), lower perception of social competence ("I'm not one of the cool kids. I don't fit in."), and self criticism ("I'm a misfit").

Developmental factors must be considered when evaluating a child or adolescent [9]. The capacity to express cognitive content of the disorder may be correlated with psychological maturity and mediated by chronological age. Older and emotionally sophisticated children may be better able to put their thoughts into words and describe their cognitions.

Emotional: Emotional symptoms generally include sadness, excessive worries, irritability, social distress, poor self esteem, feelings of inadequacy in interpersonal relationships and high degree of loneliness [5].

Interpersonal

Typical interpersonal symptoms include restricted peer interactions, fewer friends, social withdrawal, reluctance to participate in family gatherings and social isolation. Finally, the play activities of these individuals are sometimes unusual which further socially isolate them. This lack of common interests may be because of limited opportunities for social interactions due to their social anxiety and avoidance [5].

Treatment

Pharmacological Treatment

Currently, ►selective serotonin reuptake inhibitors (SSRIs) are the mainstay of pharmacological management for youth. Currently available SSRIs include Fluvoxamine (Luvox), Fluoxetine (Prozac), Paroxetine (Paxil), Citalopram (Celexa), Sertaline (Zoloft), and Escitalopram (Lexapro).

Behavioral Treatment

Social Effectiveness Therapy for Children (SET-C) is a comprehensive behavioral treatment modality which has been specifically designed to reduce social anxiety and enhance children's interpersonal social skills. SET-C focuses on helping children reduce their avoidant and inhibitory behaviors in socially evaluative and interpersonal contexts. SET-C consists of social skills training (SST), Exposure and programmed practice with peers to provide real life coping experience [5].

Cognitive Behavioral Treatment

Cognitive behavioral therapy is a form of psychotherapy which hypothesizes that individuals' problematic emotions and dysfunctional behavior is shaped by misinterpretations of themselves, other people and their experiences. The most widely used CBT protocol for childhood anxiety is Phillip Kendall's Coping Cat Program [8]. This protocol is administered for children ages 7–16 years. The approach can be utilized for both individual and group treatments.

Albano et al. [2] adapted group cognitive behavioral therapy for adolescents ages 13–17, which involves 16 group sessions incorporating psycho-education, skills training and behavioral exposure.

Conclusion

Social phobia is a common and complex disorder which comes at considerable costs to young people. Proper identification and treatment is crucial. Fortunately, there are multiple promising therapeutic options. Hopefully, future research will facilitate advances in the detection and treatment of social phobia.

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Social Practices

► Cultural Bias

Social Problem Solving

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Synonyms

Interpersonal cognitive problem solving; Interpersonal problem solving; Social decision making; Social information processing

Definition

Social problem solving is the process by which individuals identify and enact solutions to social life situations in an effort to alter the problematic nature of the situation, their relation to the situation, or both [7].

Description

In D'Zurilla and Goldfried's [6] seminal article, the authors conceptualized social problem solving as an individuals' processing and action upon entering interpersonal situations in which no immediately effective response is available. One primary component of social problem solving is the cognitive-behavioral process of generating potential solutions to the social dilemma. The steps in this process were posited to be similar across individuals despite the wide variability of observed behaviors. The revised model [7] is comprised of two interrelated domains: problem orientation and problem solving style. Problem orientation describes each individual's meta-cognitive schema, which tends to be a stable approach to understanding problems. Problem orientation has been defined in two primary ways, positive and negative. Individuals with a positive problem orientation believe that problems are challenges to be solved rather than threats. This positive orientation has been associated with more rational and adaptive problem solving efforts and adjustment. In contrast, a negative orientation is

characterized by beliefs that social problems represent major threats to well-being, that one lacks self-efficacy to solve problems, and that one will experience emotional distress when confronted with problems. This negative orientation has been associated with dysfunctional social problem solving styles and problems in adaptation (i.e., anxiety, depression, and conduct problems).

The cognitive and behavioral skills that comprise individuals' general responses to stressful or novel problems characterize their problem solving style. The three styles outlined by D'Zurilla and colleagues [6, 7] include rational, impulsive/careless, and avoidant styles. Classification into a problem solving style is based on the utilization of the four major problem solving skills: problem definition and formulation, generation of alternative solutions, decision making, and solution implementation and verification. Rational problem solving is characterized by a planful and systematic use of these skills to solve problems. In contrast, impulsive/careless and avoidant styles are considered dysfunctional because individuals classified into these categories do not systematically process each step of the model. Instead, the impulsive/careless problem solving style attempts to utilize problem solving strategies, but does so in an incomplete and inadequate manner. The avoidant problem solving style is characterized by passivity, procrastination, and avoidance.

The model presented by D'Zurilla and Goldfried was primarily developed with attention to adult problem solving processes to explain variations in social behavior. Their model was applied and expanded by Spivack and Shure [14] to explore developmental factors that influence problem solving. The authors examined social problem solving (called interpersonal cognitive problem solving skills) that would distinguish maladjusted children from their well-adjusted peers. Spivack and colleagues [13, 14] posited several prerequisite cognitive skills that were necessary for effective problem solving; specifically, the abilities to consider step-by-step plans, think causally, develop alternative solutions, anticipate consequences, and understand the motives of others. In a series of studies, Shure and Spivack [13, 14] identified the relationship between interpersonal cognitive problem solving skills and normative age-related changes. Moreover, the authors illustrated that deficiencies in these skills were related to problematic social skills, impulsiveness, and withdrawn behavior in preschool to elementary school aged children [13].

Crick and Dodge [3] provided a comprehensive review and model of the social cognitive processes leading to maladjustment in childhood. Again, these authors proposed that when faced with a social problem, children engage in a number of steps before implementing

a response and that differences in these processes may account for the differences observed in children's social behavior. Similar to the D'Zurilla and Goldfried model, Crick and Dodge [3] suggested the essential steps in social problem solving included encoding the problem, interpreting cues in the social situation, clarifying goals, generating possible responses, selecting a response, and enacting the behavior. In an important distinction from the D'Zurilla and Goldfried model, the authors suggested that differences in processing styles may be most predictive of differences in social behavior and could be illuminated at each step in the problem solving process. The Crick and Dodge reformulation included an explicit emphasis on the importance of the interaction between individuals' internal processes, developmental changes (i.e., increased in experiential knowledge; improved attention, memory, and organization; and increased speed of processing information) and environmental factors on problem solving efforts (e.g., emotion processes; access of social scripts, schemas, and knowledge in memory).

In a model similar to Crick and Dodge's [3] reformulation, Rubin and Krasnor [11] focused on the development of automaticity to account for the stability and change in the development of social behavioral patterns. Specifically, the authors suggested that children learn standard scripts for common and routine social situations. The scripts are stored and cued by internal or external stimuli and are easily and unconsciously accessed in familiar social situations. However, when in novel situations, situations that violate expectations, and situations that have been unsuccessful in the past, children are required to deviate from script-driven behavior. Rubin and Krasnor classified such situations as "social problems." Once a social problem is encountered, children must select the social goal, examine the task environment (the social status, familiarity, type of relationship, age of others); generate, retrieve strategies, and select strategies (automatic or deliberate), implement a strategy, and examine the outcome.

The four models presented for social problem solving have several common elements. The seminal social problem solving model [6] and the revised models all share core steps in the problem solving process, including recognizing the problem, generating alternatives, deciding on an action, and implementing the action.

Relevance to Childhood Development

Development of Social Problem Solving Abilities

The attention to developmental factors highlighted by Spivack and Shure [14], Crick and Dodge [3] and Rubin

and Krasnor [11] represent significant steps toward understanding social problem solving processes in youth. The majority of research has emphasized the importance of social influences on the development of effective social problem solving skills. The following sections describe influences including attachment relationships, parenting practices, and peer influences, and cultural context on these skills.

Socialization

Attachment and Parenting

Classic attachment theory emphasizes the importance of children's relationships with their primary caregivers and the manner in which those relationships affect future relationships [1]. In the attachment framework, early relationships provide children with internal working models, which serve as guides for subsequent social interactions. Applied to the study of social problem solving, secure attachments have been frequently emphasized as essential to the transmission of social information and the development of effective and appropriate levels of independence and social competency [12]. Within the context of their attachments to caregivers, children are believed to engage in social learning processes (e.g., observation of models) through which they internalize strategies for managing ambiguous social situations. It has been suggested that secure attachments are more likely to foster adaptive social problem solving, whereas insecure attachments may be associated with maladaptive strategies [12].

Although few data are available to elucidate the relationship between child attachments and social problem solving, a significant body of research exists to support a more general connection between parent-child relationship patterns and children's social competence, with maternal nurturance and authoritative parenting correlated with prosocial problem solving skills [9]. Significant parental stressors, such as parental psychopathology (e.g., depression), may also negatively impact child adjustment by interfering with effective parenting behavior [5].

Peer Influences

Beyond the home environment, various aspects of children's broader social ecologies appear to be linked to social problem solving abilities. Socially accepted, rejected, and neglected children differ in their social problem solving abilities at each step of the social problem solving process. Research has documented that children who experience relational problems have difficulties interpreting the actions of their peers, when compared to socially-accepted children [3]. Indeed, socially-rejected children appear

more likely to make attributional errors regarding peers' intentions in social situations and are more likely to infer hostile or negative intent. When generating behavioral response options, children who experience social rejection are also more likely to identify avoidant or aggressive strategies to solve social problems. In contrast, socially-accepted children tend to generate behaviors that are competent and effective rather than incompetent or aggressive.

Community and Cultural Context

Beliefs about the appropriateness of different problem solving strategies are also rooted in community norms and cultural values related to assertiveness and individualism. Relative to more individualistic cultures, adolescents living in cultures that endorse collectivistic values may be more likely to use the tactic of withdrawing to deal with social conflicts. In addition, experiences such as exposure to community violence have been associated with beliefs about the appropriateness of aggressive problem solving strategies. Nevertheless, the extent to which aggressive responses are actually detrimental to youth functioning may be moderated in part by the cultural acceptability of aggression versus disengagement as a problem solving strategy [2].

Relationship Between Social Problem Solving and Psychopathology

There is a substantial literature investigating the interrelationship between social information processing, effective social problem solving, and adjustment across development. Specifically, both internalizing and externalizing type childhood disorders have been found to have elements of ineffective social problem solving skills. Disorders such as oppositional defiant disorder, conduct disorder, and depression have been found to be associated with unique pathways in the development of social problem solving deficits. In the following sections, the primary disorders will be discussed as well as potential treatments targeting these deficits.

Externalizing Disorders

Research investigating the social problem solving abilities of children with externalizing disorders and maladaptive behaviors found in non-clinical samples, including aggression, delinquency, and substance abuse support the notion that these problems are associated with a variety of deficits in implementing each step of the social problem solving process. Specifically, aggressive children, when compared to non-aggressive children, demonstrate deficits in encoding social cues, and a "hostile attribution bias" in which they tend to attribute hostile intent in ambiguous

situations [8]. Moreover, aggressive children tend to generate fewer and lower quality solutions to social problems and evaluate aggressive solutions as more effective.

As the reviewed literature illustrates, aggressive behavior is associated with a variety of deficits in each of the social problem solving steps; however, research suggests that the relationship between social problem solving and aggression may be dependent on whether the aggression is reactive or proactive. Research that has examined subtypes of aggression has found that reactive-aggression is associated with deficits in the earlier steps of social problem solving, including deficits in encoding of cues and increased rate of hostile attributions, whereas children with proactive aggression were not found to have such deficits [4].

Internalizing Disorders

Research on child depression has suggested that depressed children exhibit less effective social problem solving than their non-depressed peers across most steps in the social problem solving process. Studies indicate that depressed children may experience difficulties with correctly encoding relevant information about the problem, exhibit a negative problem orientation, generate fewer solutions and problem responses that are less assertive and irrelevant to the problem, and evaluate ineffective solutions (e.g., withdrawal) more positively than do their non-depressed peers [10].

Social problem solving abilities have been investigated to a lesser extent in anxious children. However, the literature suggests that early fearful and isolative behaviors are significantly associated with less flexible problem solving style and greater use of adult resources rather than using independent strategies [12].

Intervention

Social problem solving has been a primary focus of childhood intervention since D’Zurilla and Goldfried [6] proposed their initial model. The basic problem solving framework has been applied to teach problem solving skills as a means of clinical intervention as well as prevention of future deficits. Although each of the social problem solving interventions is uniquely designed to address the needs of specific groups across distinct developmental stages, a common element among the interventions is explicit teaching of the problem solving steps. Many of the programs use developmentally appropriate teaching strategies that include skill modeling by an adult leader, opportunities for children to role play the newly learned skills, opportunities to practice the skills in vivo, and feedback when skills are implemented.

Prevention Programs

The majority of prevention programs are implemented in the school setting with small groups of children. To enhance efficacy of treatment, parents are typically involved in the programs. The Interpersonal Cognitive Problem Solving Program, Promoting Alternative Thinking Strategies (PATHS), Social Relations Program, and The Coping Power Program prevention treatments are empirically supported and have been shown to result in significant improvements in children’s social problem solving abilities following the intervention.

Clinical Interventions

Unlike prevention programs, clinical interventions provide treatment for targeted clinical groups. These interventions have included multimodal approaches, which incorporate problem solving skills training (PSST) as a component of a broader intervention, as well as other more “pure” social problem solving therapies that primarily target deficits in social problem solving skills. PSST and Incredible Years Classroom Social Skills and Problem-Solving Curriculum are two empirically supported intervention programs that rely on social problem solving techniques as a core component. A variety of other interventions have also incorporated components of social problem solving into their treatment approach.

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Social Referencing

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Synonyms

Joint attention

Definition

Social referencing refers to the process wherein infants use the affective displays of an adult to regulate their behaviors toward environmental objects, persons, and situations. Social referencing represents one of the major mechanisms by which infants come to understand the world around them.

Description

In the last quarter of the first year, infants become capable of integrating interpersonal communication with objects and situations in the environment. Infants in this period are capable of viewing their parents as teachers and sources of knowledge about the environment; thus, there is true two-person communication about third events, including people and objects in the environment, which yields meaning about the world to the infant [2]. With newly acquired knowledge about environmental events, infants are capable of regulating their behaviors toward people and objects in accordance with the appraisals given them by caregivers.

Social referencing is perhaps the emotional cornerstone of this developmental period because it both broadens and deepens the infant's emotional life [3, 11]. Social referencing refers to the process wherein infants use the affective displays of an adult to regulate their behaviors

toward environmental objects, persons, and situations [1]. In one of the most common paradigms used to study social referencing, an ambiguous and novel object is introduced to infants between the ages of 9 and 18 months. Upon the introduction of the object, an adult emotes, via facial and vocal modalities, either a positive or a negative signal to the infant. Of interest is (a) how the child's emotional displays are regulated and (b) how the child's instrumental behaviors, such as reaching, are regulated as a function of the adult's emotional displays. If, for example, a mother displays disgust in relation to a novel object, an infant tends to avoid the object and express negative emotions, but in the context of a happy display from the mother, the infant tends to readily approach the object [2]. Social referencing represents one of the major mechanisms by which infants come to understand the world around them [2].

The most powerful regulatory effects of social referencing were demonstrated using a visual cliff paradigm [8]. In this experiment, the investigators placed the infant on the shallow side of a visual cliff, and the mother stood at the deep side (30 cm) in front of the infant. The mother coaxed the child to the edge of the cliff and when the infant looked up at her, she posed 1 of 5 facial displays (happy, interest, fear, anger, and sad). When 12-month-old infants approached the edge of the cliff and saw their mothers pose a "fear face," none of the 17 infants crossed, and when they saw an "angry face" only 2 infants crossed. In contrast, 14 of the 19 infants in the happy face condition and 11 of the 15 infants in the interest condition crossed the cliff after referencing their mothers. Finally, infants showed mixed responses to their mothers' sad facial displays (6 of the 18 infants in the sad face condition crossed the cliff, the other 12 infants did not).

The findings concerning the regulatory effects of a variety of emotions on infant behavior in social referencing paradigms have been extraordinarily consistent [2, 7]. Four general conclusions emerge from the literature. First, the emotional expressions of others appropriately elicit approach and withdrawal behavior in a variety of settings. Second, vocal expressions alone, and together with the face, regulate infants' behaviors more powerfully than facial expressions alone [6, 7, 10]. Third, negative emotional displays elicit withdrawal from objects more readily than displays of joy elicit approach [3, 6, 9]. Finally, infants regulate their behavior in accordance with emotional displays from either the mother or another adult [4, 5].

In sum, social referencing represents one of the most significant milestones of emotional development in infancy. Many questions remain unanswered, however. For example, how does social referencing develop

over time? What individual differences exist in social referencing? What cognitive and perceptual skills enter into the development of social referencing? Future research holds the key to these questions.

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Social Responsibility

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Synonyms

Citizenship; Public duty; Societal obligation

Definition

An ethical theory in which it is believed that those in need of assistance should be helped, even if the costs outweigh the benefits. The theory also conveys the belief that every individual has the responsibility of acting when a need for help arises, because it is in the best interest of society.

Description

The social responsibility norm is an expectation that if help is needed, it is the responsibility of anyone who sees that need to provide help regardless of potential risks to the person helping. Thus, helping others is seen as a social responsibility, and if properly carried out will ultimately be in the best interest of the society as a whole.

Relevance to Childhood Development

Social responsibility is an idea that is taught to children at a very early age. Whether it is through a religious affiliation, a school, or a club, community service is very much encouraged. Volunteering within the context of community service may instill work ethic and promote a sense of appreciation. Social responsibility taught at a young age could potentially prepare children for greater academic and career opportunities as adults, as universities and employers tend to seek appreciative individuals who are willing to work hard and contribute to the larger community.

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Social Skills

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Synonyms

Interpersonal skills; Pragmatics

Definition

A set of verbal and nonverbal behaviors, cognitive and language abilities, and attention that facilitates situation specific, appropriate and reciprocal interaction and communication with others.

Description

Social skills are culturally specific behaviors, learned over time, that are influenced by group membership, environmental factors, social status, and individual characteristics, as well as reinforcement or lack of reinforcement from others. The interactive and reciprocal nature of social skills suggests a developmental learning process to obtain social skills. Social skill difficulties can be skill based (lack of learning of appropriate skills) or performance based (inability to apply previously learned skills appropriately).

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Social Skills Training

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Synonyms

Natural environment training

Definition

Social skills training is comprised of techniques and methods utilized to assist individuals with various social interaction deficits.

Description

Social skills training is an area of behavior modification therapy, utilized by educators and therapists, to strengthen socialization and play skills required to succeed in a social environment. This type of treatment, also known as natural environment training, provides a setting similar to those found in scholastic programs allowing for a higher probability of generalizing skills [1]. Many individuals benefit from social skills training; however, these programs are particularly designed for individuals with attention deficit disorders, autism spectrum disorders, psychiatric conditions and learning disabilities. Within these disabilities, training focuses on deficits in generating and maintaining social relationships with peers [3]. Other deficits include a low level of social interactions, few initiations in conversations or compliments, lack of orientation towards peers, and minimal eye contact [1].

The level of training and types of techniques utilized in social skills programs vary depending on the deficits of the individual and training of the professional. Common similarities between programs involve specializations in social interactions, communication, eye contact, conversation skills, verbal and nonverbal social cues, and conflict resolution skills [3]. These programs are taught within individual or group treatment sessions. Individual social sessions focus on strengthening environmental social skills or skills required to participate in an academic program. Examples include listening, eye contact, and following group instruction. Group social sessions strengthen social interaction skills or skills that generate and maintain conversations and communication. Within these two treatment categories, several methods are utilized to focus on individual skill deficits. School programs, play dates, peer modeling, peer tutoring, sibling training, video feedback, social stories, social songs and social scripts are a few of the many components of social skills treatment [2].

Research studies have indicated social skills training programs to have a positive influence on social interactions and communication in individuals with social deficits [4]. Further studies have indicated that individuals with untreated social deficits may develop depression and a lack of responsiveness to peers. Within adulthood, deficits maintaining intimacy and relationships with individuals develop resulting in loss of friendships, limited employment opportunities, and eventual isolation.

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Social System

► Family Therapist

Social Thinking

► Social Cognition

Social Validity

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Synonyms

Acceptability; Intervention satisfaction; Subjective assessment

Definition

Social validity refers to the acceptability of and satisfaction with intervention procedures, usually assessed by soliciting opinions from the people who receive and implement them.

Description

Intervention procedures for child behavior are socially valid when people judge them as being acceptable. Typically, social validity assessment is conducted by questioning the recipients of intervention and the individuals responsible for procedural implementation. For example, a child who receives a school-based intervention might be asked about the appropriateness of the procedures that were used by the classroom teacher (e.g., did they make the student “stand out” among other students?). In turn, the teacher might be queried about the complexity of the intervention procedures, time required for implementation, and satisfaction with the outcome. The information gathered from social validity assessment enables professionals to select intervention procedures that will be well received and in consequence, will be applied accurately.

Social validity assessment can be conducted through interviews, surveys, and rating scales. Questions usually are posed with a positive valence such as, “The classroom plan I used with John helped him complete more academic assignments.” Respondents reply to such questions by endorsing one of several numerically anchored options: (1) I strongly disagree, (2) I disagree, (3) I have not opinion, (4) I agree, (5) I strongly agree. An average score is derived as a global measure of acceptability and satisfaction.

There are other areas worthy of social validity assessment. For example, the consumers of intervention may be asked to what extent the selected objectives are consistent with community standards (*norm referenced criteria*). Or, experts in a particular area of child development may be requested to comment about the purpose and components of an intervention plan (*expert validation*). Finally, professionals have been advised to correlate the results of social validity assessment with direct measurement of observable behaviors.

Relevance to Childhood Development

Parents, teachers and therapists are frequently given advice about child development. The effectiveness of recommended child rearing practices notwithstanding, it is desirable to know whether the methods suggested by professionals are judged positively by consumers. Procedures with poor acceptability will likely not be adopted. Other procedures may be implemented successfully but judged poorly because they are too difficult to apply consistently. Accordingly, validating the social acceptability of procedures should be an emphasis in the child development literature.

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Social Withdrawal

► Shy Children

Socialization

► Cultural Transmission

Societal Obligation

► Social Responsibility

Society for Research in Child Development

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Definition

The Society for Research in Child Development (SRCD) is an international organization for researchers and practitioners working in the domain of child development. SRCD, as a not-for-profit entity, seeks to support communication and cooperation among professionals across different disciplines to serve the promulgation of research on development and its utilization to address child welfare issues [5]. The organization sponsors a biennial research conference during odd numbered years and publishes several highly regarded journals and a newsletter, including *Child Development*, *Child Development Perspectives*, *Monographs of the Society for Research in Child Development*, and *Social Policy Report*.

Description

SRCD was founded in 1933, with Robert S. Woodworth as chairman [3]. It evolved from and later replaced the Committee on Child Development (CCD), which had been founded in 1924 as an offshoot of the National Research Council [4]. Numerous societal factors converged to influence the formation of an organization devoted entirely to research with children. First, the social sciences were now recognized within academics [4] and several notable figures in the field, such as Sigmund Freud, John Watson, Jean Piaget, and Arnold Gesell were proposing theories and completing research that had important implications for child development [2]. Second, during the early 1900s following World War I, public and government attention had shifted to exploring the childhood contributions for why many youth had been disqualified from enlisting in the armed forces due to physical or mental concerns [1]. Finally, during this early period private funding sources and public focus turned to preventative measures to reduce social problems and a new mission to enhance the health and well-being of children [4].

Until the formation of the CCD, the topic of child development was not considered to be a legitimate scientific pursuit across many different disciplines. Thus, the formation of an organization devoted exclusively to research and early recruitment that focused on increasing male membership was one way to prioritize and elevate the study of children into the sphere of science, rather than

laypeople's interest [1]. After the formation of CCD, interest in child development grew, as did the membership and productivity of the committee [5]. Despite this successful beginning, the onset of the Great Depression reduced the availability of funding, new child-focused organizations began to compete for recognition, and disagreement occurred within and outside the committee regarding scope and purpose [4]. The founding of SRCD represented a recommitment by CCD members to child development topics, in addition to a new agreement by members that research and application are inseparable [3].

Since its inception, SRCD has grown and changed in membership, productivity, and scope, becoming a premiere multidisciplinary association for the study of children. From an initial group of 125 people [3], the organization now claims a national and international membership of approximately 5,500 professionals who pay its annual dues [5]. Although still committed to the interdisciplinary investigation and application of developmental issues, the composition of SRCD membership has changed drastically. From initial demographics at inception indicating only 25% of members identified as psychologists, current members are overwhelmingly represented from the field of psychology [2]. Within the realm of publication, SRCD at its founding had acquired journals in danger of discontinuation and frequently needed to implore members to submit articles for publication [3]. As of 2002, given the influx of publications, *Child Development* no longer had to ask for articles and instead demonstrated a 75% rejection rate [2]. In addition to furthering these initial goals, SRCD has also expanded its interests to include a focus on diversity in both membership and research population, taken a major role in national policy development on children's issues, and remains a leader in formulating and imposing ethical guidelines for research on a child population [5].

Relevance to Childhood Development

SRCD remains a central source for the sharing of research results for all fields within the scope of child development and the cooperation of the professionals involved. In addition to encouraging research through funding, publications, and conferences, SRCD is concerned with transmitting the newest in research results to inform the public and benefit children around the world.

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Socio-Dramatic Play

► Dramatic Play

Sociometric Techniques

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Definition

Sociometric techniques are methods that qualitatively measure aspects of social relationships, such as social acceptance (i.e., how much an individual is liked by peers) and social status (i.e., child's social standing in comparison to peers).

Description

Sociometric techniques have been used since the 1930s, when Moreno proposed that two dimensions of interpersonal relationships (attraction and repulsion) and the perceptions of individuals involved in relationships combined in various ways to determine nine dimensions of interpersonal relationships (e.g., attracted, attractive, rejected, isolated) [10]. Over subsequent decades, statistical techniques became more complex, and there was increasingly recognition of the importance of distinguishing between the low status categories of rejection and neglect. An important advance in sociometric measurement occurred in 1979, when Peery proposed a classification system that included both social preference (i.e., liking) and social impact (i.e., visibility) dimensions [14]. This classification system became a model for the current classification systems employed in the study of children's peer relationships [5]. Currently, the two most common sociometric techniques used within peer relations research are the peer nomination technique and the peer ratings technique.

Peer Nominations

The peer nomination sociometric technique is one method used to determine a child's social status. Commonly, peer nominations are obtained in school classroom settings where children are asked to select from a class roster the three classmates they like the most (positive nominations) and the three classmates they like the least (negative nominations). Although the use of limited nominations has been typical, some researchers allow children to make unlimited peer nominations. For younger children, peer nominations are often obtained by asking children to select from a set of class photographs the classmates they like most and like least [4]. Sociometric categories of social status are determined by the relative number of positive nominations and negative nominations children receive from their peers. Children are classified into one of five sociometric categories of social status: popular (many positive, few negative nominations), rejected (many negative, few positive nominations), neglected (few positive and few negative nominations), controversial (many positive and many negative nominations) and average [7]. Research has shown that sociometric classification systems developed for use with the peer nominations technique have good reliability and validity in classifying children's social status [7, 11, 15].

Another use of peer nomination techniques has been to measure perceived popularity, or the child's level of social visibility within the peer group. Students are typically asked to identify the most popular people in their class; thus, this technique is employed as an index of social reputation, whereas sociometric popularity is an index of likeability. Children who are perceived as popular are not necessarily well liked by the peer group as they are more apt to engage in antisocial behavior than children who are sociometrically popular [6].

Peer nomination techniques have also been used to identify children's friendships. Typically, children are asked to nominate their three best friends. If two children nominate one another, then they are considered friends. In some cases, children are also asked to indicate a very best friend, and if that friendship is reciprocated, then the particular dyad is considered to be very close friends [3].

Peer Ratings

The peer rating sociometric technique is used to determine a child's level of social acceptance. Children are asked to rate an aspect of peer interaction (e.g., how much they like to play with a specific classmate), typically on a 5-point Likert-type scale (e.g., 1 = *not at all*; 5 = *a lot*). For younger children, a 3-point Likert-type scale with

visual aids (e.g., faces ranging from frowns to smiles) is often used, along with photographs of the classmates to be rated [4]. The mean peer rating received is used to determine a child's level of acceptance in the peer group (i.e., low, average, high). To eliminate the possibility of children being inaccurately classified, most rating scales include a "don't know" option for children to choose if they do not know a classmate.

In contrast to peer nomination techniques, peer rating techniques do not allow distinctions to be made among the low status groups (i.e., rejected, neglected, controversial). Nevertheless, peer ratings have high levels of reliability and validity [2]. In fact, peer ratings yield more reliable data than nominations given that each child is rated by all participants [13], whereas peer nominations provide information only on participants who are nominated by their peers. In addition, rating scales are better able than nomination techniques to detect even subtle changes in the level of a child's acceptance by the peer group.

Ethical Issues Related to the Use of Sociometric Techniques

Not surprisingly, some school personnel and parents have raised concerns about the appropriateness of having children report how much they like their peers. Examination of the impact of having children complete sociometric measures has revealed that participation in these tasks does not appear to have negative effects on children [8]. After completing sociometric measures, children do not tend to change their social interaction patterns. Indeed, children tend not to play with peers they dislike either before or after responding to sociometric measures. Furthermore, children's feelings of loneliness do not increase, even among the low-accepted groups, and children generally report that they enjoy completing these measures and sharing their feelings. Of course, it is important to emphasize to children that researchers will keep their responses confidential, and children are strongly encouraged not to discuss their responses with peers. Interestingly, however, girls have been found to be more likely than boys to discuss their responses, though they are much more apt to seek out someone to whom they gave a positive, versus a negative, evaluation. The likelihood of children discussing their responses can be decreased if sociometric measures are administered before other structured activities, such as a math lesson, and not before unstructured time, such as recess. Despite findings that participation in sociometric tasks does not adversely impact children, researchers have investigated alternative techniques that do not involve the use of negative nominations, which seem to be the most controversial.

Specifically, data from positive nominations and rating scales have been combined, with low ratings being used as a substitute for negative nominations. This system accurately identifies rejected status children when circumstances do not allow for the use of negative nominations [1].

Relevance to Childhood Development

Sociometric techniques have been important tools for identifying how successful children are within their peer group. A valuable contribution of sociometric measures is that they have enabled researchers to develop profiles of the types of behaviors that are associated with children being liked, disliked, or overlooked by the peer group. For example, prosocial behaviors are correlated with popularity, aggressive and disruptive behaviors are predictive of rejection, and social withdrawal is associated with peer neglect [12]. The use of sociometric techniques has also revealed that the relation of specific behaviors to status sometimes varies as a function of the child's gender, developmental level, or social context. For example, withdrawn behavior is increasingly associated with peer rejection as children get older, and this is especially true for boys. Research using sociometric techniques has indicated that particularly those children who are rejected by peers are at risk for a variety of negative outcomes, including loneliness, depression, delinquency, and academic difficulties [9]. Given the risks associated with rejected status, researchers have focused on trying to improve the acceptance of rejected children as a means to reduce their vulnerability to maladaptive outcomes. Information about how specific behaviors are related to peer status has been important for informing the design of social skills intervention programs. Such programs tend to be based on the premise that rejected children are often deficient in critical social skills, and within these programs children receive coaching on and practice those skills that have been found to be associated with peer acceptance.

Sociometric techniques have been used effectively to identify children who are having difficulties in the peer group and who may benefit from social skills intervention programs. Moreover, these measures are important for assessing the impact of such interventions. It should be noted that peer ratings seem to be more sensitive to detecting changes in peer status following interventions than are nomination techniques. Although post-intervention, a child may still not be nominated among peers' top three choices as a most liked student, a rating scale can reveal whether there have been even subtle improvements in the peer group's liking of that student. Overall, sociometric techniques are useful tools for understanding

children's social relationships, identifying children who may be at risk for later maladjustment, and assessing the effectiveness of social skill interventions.

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Sociomoral Perspective-Taking

► Perspective-Taking

Sociopathy

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Synonyms

Antisocial personality disorder; Dissocial personality disorder; Psychopathy

Definition

Sociopathy is a term used to describe certain personality characteristics including lack or impaired conscientiousness, lack of future orientation, lack of interest in goal-directed activities [15], egocentricity, callousness, impulsivity, exaggerated sexuality, excessive boasting, risk taking, inability to resist temptation, antagonistic and deprecating attitude toward the opposite sex, and lack of interest in interpersonal bonding.

Description

The concept of psychopathy was introduced in the literature by Cleckley around the 1940s [20]. Sociopathy was once considered as a distinct cluster of personality disorders, namely the Sociopathic Personality Disturbances (SPD). SPD was recorded in the first edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-I; 1952) as a cluster of personality disorders encompassing two distinct personality disturbances, antisocial and dyssocial personality reaction and reflected specific types of social deviance [1]. In the second edition of the DSM (DSM-II; 1968), the category of SPD along with the dyssocial reaction component were discarded, though the antisocial reaction component remained, reflecting a distinct personality disturbance. The antisocial component was retained throughout the following editions of the DSM, i.e., DSM-III (1980), DSM-III-R (1987), DSM-IV (1994), and DSM-IV-TR (2000); however, since the 1980s it has been considered as a distinct personality disorder, namely Antisocial Personality Disorder (APD), which fell under the umbrella of Cluster B personality disorders [17].

The concept of Dissocial Personality Disorder (DPD) is currently used by the World Health Organization (WHO) to describe personality disturbances characterized by disregard for social obligations, and callousness. Moreover, within DPD there is gross disparity between behavior and social norms, and the behavior does not

seem to be modifiable by adverse experience or punishment. Individuals diagnosed with DPD show low tolerance to frustration and a low threshold for discharge of aggression, and are characterized by the tendency to blame others and the use of rationalizations to explain behavior that has brought the person into conflict with society (<http://www.who.int/classifications/apps/icd/icd10online/?gf60.htm+f60.2>).

Since the abandonment of the SPD concept in 1968 and the introduction of APD, little work has been done engaging the concept of sociopathy. Nonetheless, contemporary research and practice uses the terms sociopathy, psychopathy, DPD, and APD interchangeably. However, Lykken [15] argues that even though the most recent editions of the DSM treat the APD as a single entity, experience in the field denotes that APD is a heterogeneous category, constituted by subcategories among which are sociopathies, the major subcategory of antisocial personalities, and psychopathies, which constitutes an officially undocumented subcategory of APD.

Lykken [15] postulates that Sociopathy refers to individuals with normal temperament and in whom antisocial tendencies stem from the individuals' failure to acquire the basic attributes of socialization due to failure of the primary socializing agents, the parents, and especially due to weak parental bonding and control and aversive parental example. Furthermore, sociopaths are believed to be involved in more criminal acts compared to psychopaths. On the other hand, antisocial tendencies in psychopathy are believed to stem from biological and temperamental differences, as well as qualitative differences in brain function, which make it difficult to socialize these individuals while they are growing up [9]. Finally, Lykken [15] conceptualizes sociopathy and psychopathy as conditions lying on the opposite ends of the same dimension, with maximized inadequate parenting being located at the sociopathic end and maximized difficult temperament being located at the psychopathic end.

Additionally, even though psychopathy in general is believed to include features such as remorselessness, callousness, deceitfulness, egocentricity, failure to form close emotional bonds, low anxiety proneness, superficial charm, and externalization of blame, many theorists have argued that psychopaths can differ from one another substantially, both on a behavioral and on a categorical level [20]. Such conceptualizations led to the proposal of two different types of psychopathy, primary and secondary. These two subtypes are distinguished from one another based on anxiety proneness. Primary psychopathy refers to individuals who do not seem to experience anxiety or guilt due to low conscience; while secondary psychopathy

refers to individuals with antisocial behavior who experience high levels of anxiety and neuroticism [20].

Nevertheless, neither sociopathy nor psychopathy have ever been clearly defined and are not even included in the contemporary official psychiatric nomenclature [15]. Thus, even though focus in research has been proportionally placed upon psychopathy, the majority of research has been mainly concerned with APD. APD is a chronic condition characterized by a pervasive pattern of disregard for, and violation of, the rights, wishes, or feelings of other people, which begins in childhood or the early teenage years and proceeds into adulthood [2]. This pattern of ignorance for the rights of others might be indicated by three or more of the following features: failure to conform to social norms, regarding lawful behavior, which is indicated in recurrent acts which can lead to arrest; deceitfulness and manipulative behavior, as evidenced in repeated lying, the use of aliases, conning, or malingering with an aim for personal profit or pleasure; impulsivity or failure to plan ahead, decisions taken on the spur of the moment without considerations about the consequences of one's behavior; irritability and aggressiveness, as evidenced by repeated physical fights or assaults, including spousal and child abuse; recklessness regarding one's own and others' safety, as indicated for example in speeding, driving while intoxicated, and substance abuse; irresponsibility, as evidenced in the person's inability to keep consistent work behavior, leading to recurrent job abandonments and prolonged unemployment periods, or the person's inability to meet financial obligations; and lack of remorse, as evidenced in behaviors of indifference or the use of rationalization for hurting or mistreating others. Moreover, for the diagnosis of APD to be applied the person must be at least 18 years old and there must be a history of Conduct Disorder (CD) before the age of 15 [2].

APD affects approximately 3% of males and 1% of females in community samples, whereas in clinical settings prevalence estimates range from 3 to 30%, with higher estimates being reported among substance abuse and prison settings [2]. Additionally, APD is closely associated with features traditionally attributed to psychopathy such as lack of empathy, callousness, cynical behavior, inflated or arrogant self-appraisal, superficial charm, and sexual exploitation [2]. Individuals with APD may also have a history of multiple sexual partners, and are more likely to be irresponsible parents, may fail to be self-supportive, and also have high probabilities of becoming impoverished and homeless, spend many years in penal institutions, or die prematurely by violent means, including suicide, accidents, and homicides [2]. Other associated

symptoms or disorders with APD include dysphoria, inability to tolerate boredom, anxiety disorders, depressive disorders, substance-related disorders, somatization disorder, and pathological gambling or other disorders related to impulse control, as well as features of other personality disorders, especially borderline, histrionic, and narcissistic personality disorders [2]. Finally, even though the condition is chronic, it is possible to become less evident as the person grows older, and especially around the age of 40 [2].

Overall, scientific research indicates that APD constitutes the developmental representation of CD in adult life, however, recent evidence also suggests that sociopathy can be acquired as a result of brain trauma or injury particularly in the right frontal region, including the orbitofrontal cortex (e.g., 8). Nonetheless, individuals with “acquired sociopathy” seem to be differentiated from individuals with developmental APD in that the former exhibit significant impairment in attributing mental states, such as fear, anger, and embarrassment, to others [6].

Relevance to Childhood Development

APD and associated disorders, including sociopathy and psychopathy, seem to be the consequences of CD, a behavioral disorder evident in childhood or early adolescence. CD is among the most common reasons that children and adolescents are referred to mental health professionals, affecting approximately 4–14% depending on age group, gender, and setting [8]. According to the diagnostic criteria of the DSM-IV-TR [2?A3B2 t1sb=.012w?>] CD is characterized by a repetitive and persistent pattern of behavior by which the basic rights of others are violated or age-appropriate societal norms or rules are disobeyed. This must be manifested by the occurrence of at least three features from four categories of behavior for the past 12 months, and at least one criterion present for the past 6 months. The four categories of behavior include (a) aggression to people and animals, as manifested in bullying, threatening, or intimidating others, initiating physical fights, using a weapon that can cause serious physical harm to others, being physically cruel to people, being physically cruel to animals, stealing while confronting a victim (e.g., mugging, purse snatching, or armed robbery), or forcing someone into sexual activity; (b) destruction of property, as manifested in deliberately engaging in fire setting with the intention to cause serious damage, or deliberately destroying others’ property; (c) deceitfulness of theft, evidenced in actions of breaking into someone else’s house, building, or car, often lying in order to obtain goods or favors or to avoid obligations, or stealing items of nontrivial value without confronting

a victim, such as shoplifting; and (d) serious violation of rules, as indicated by staying out at night despite parental prohibitions before the age of 13, running away from home overnight at least twice, or school truancy before the age of 13. These behaviors must cause clinically significant impairment in social and occupational functioning, and usually be present in a variety of settings, including home, school or the community [2].

Children with CD may be subcategorized on the basis of age of onset of the disorder. CD may have its onset in childhood, if at least one of the above criteria is present before the age of 10, or in adolescence, if none of the criteria are present before the age of 10. Children with childhood-onset CD are also characterized by more aggressive and impulsive behavior, and more cognitive and neurophysiological disturbances [11]. Additionally, childhood-onset CD combined with Attention-Deficit/Hyperactivity Disorder (ADHD), as well as child abuse or neglect, unstable or erratic parenting, and inconsistent parental discipline exacerbate the probability of developing APD in adulthood [2]. Conversely, children with adolescent-onset CD exhibit a severe and impairing pattern of antisocial behavior, which is particularly related to the process of individuation and independence and includes behaviors such as rejection of status hierarchies and religious rules [11].

In addition to the childhood versus adolescent onset classification, Frick et al. [10] classified CD subgroups in terms of the presence of callous-unemotional (CU) traits (e.g., lack of guilt, lack of empathy), an approach which is analogous to adult conceptualizations of psychopathy. The logic behind this classification system derives from studies revealing distinct correlates for the subsets of CD children who also show high levels of CU traits (*CD-high-CU*) compared to those who do not (*CD-low-CU*). *CD-high-CU* children, who are primarily characterized by proactive forms of aggression [16], have shown substantial evidence of deficits in emotion processing such as decreased orienting to affective stimuli [14], low fearful inhibition [12], reduced affective perspective-taking (not underlined by deficits in affective perspective-taking) [3], and reduced vicarious affective responsiveness [4] underlined by underactivity in the sympathetic autonomic nervous system [18]. All these findings may be suggestive of affective-specific deficits in *CD-high-CU* children. In *CD-low-CU* children, on the other hand, reactive rather than proactive patterns of aggression have been reported and their lack of impulse control has been related to a diverse set of interacting causal factors such as social information processing deficits, dysfunctional family background and verbal intelligence deficits [10].

Regarding the developmental course of CD, it is noteworthy that not all children with CD will develop APD in adulthood. Even though CD in childhood and adolescence is a strong predictor of antisocial behavior in adulthood, with studies indicating that children with high instances of antisocial behaviors have a 43% chance of meeting criteria for APD in adulthood and estimates being higher in institutionalized populations, not all youth with CD engage in antisocial acts in adulthood. Having a parent with APD seems to be a strong predictor of persistence of conduct difficulties from childhood into adolescence, and then into adulthood [21]. However, further research on the persistence of CD into adulthood indicated that persistence can be predicted mainly by genetic influences [7], as well as cognitive functioning and biological and social factors, and specific personality traits such as CU traits.

Etiology

Research has identified five clusters of environmental risk factors that can potentially lead to the development of CD in childhood and APD in adulthood. The clusters encompass (a) child, (b) family, (c) school, (d) peer, and (e) neighborhood factors [22]. Child factors include birth complications, difficult child temperament, impulsivity, substance use, aggression, early-onset disruptive behavior, and low intelligence. Family factors include parental antisocial and delinquent behavior, parental substance abuse, poor child-rearing practices, such as poor supervision [2, 22], physical punishment or inconsiderate discipline [2], poor communication [22], parental rejection and neglect [2], parental physical or sexual abuse, maternal depression, maternal smoking during pregnancy [2, 22], maternal malnutrition [5], single parenthood [22], large family size [2, 22], low socioeconomic status, unemployment, and poor education and familial history of APD, Substance Dependence or Abuse, and ADHD [2]. School factors include poor academic performance, low educational aspiration, and low school motivation [22]. Peer factors include peer rejection and being associated with deviant and delinquent peers [2, 22]. Finally, neighborhood factors include living in a disadvantaged, poor, or disorganized neighborhood and having easy access to weapons [2, 22].

Additionally, it is well documented that CD and APD are highly influenced by several neurophysiological and genetic factors. Neurophysiological models suggest the involvement of the Behavioral Inhibition System (BIS) and the Behavioral Activation System (BAS) proposed by Gray, in that the BIS, which is related to fear and anxiety and inhibits action in novel situations or in situations where punishment is involved, in children with CD

appears to be underactive, whereas the BAS, which is related to reward-seeking and pleasurable behaviors, is overactive [22]. Moreover, other neurophysiological models refer to defects in the fight/flight (F/F) system, which is involved in defensive reactions in situations of frustration, punishment and pain, in that children with CD seem to have a reduced threshold for F/F [22].

Neurophysiological models also suggest that individuals with CD and APD demonstrate specific brain anomalies, especially in the prefrontal cortex, as well as neurotransmitter and hormonal defects, and particularly diminished noradrenalin, serotonin, and cortisol levels combined with excessive levels of testosterone [8].

From the genetic perspective, twin and adoption studies have revealed that there is high heritability among specific components of antisocial behavior, such as difficult temperament, sensitivity to alcohol, irritability, impulsivity, sensation seeking [5, 22], as well as risk-taking and CU traits [5]. In addition, specific genes related to aspects of antisocial behavior have been identified. These are predominantly specific 5-HT serotonergic genes, such as the HTR1B, the HTR2A, the HTR1DA, and the TDO2, and it is indicated that low levels of serotonin increase impulsivity and inhibit sensible behavior, thus increasing the likelihood for risky and antisocial behavior, such as drug abuse and gambling, and they are also associated with aggressive and violent behavior [5]. Moreover, the DRD2 dopamine receptor gene has been positively linked to impulsive, compulsive and addictive behavior [5].

Generally, twin and adoption studies have indicated that CD is significantly heritable, with estimates ranging from 27 to 78%. However, growing evidence suggests that both genetic and environmental influences, and particularly their interactions, are of utmost importance in our effort to explain individual differences in antisocial behavior, including differences in criminal behavior [5].

Management

The nature of antisocial behavior disorders, including sociopathy, psychopathy, APD, and CD, makes them particularly problematic for society [21] and understanding their origins is a crucial task for social scientists. To date, researchers have produced substantial evidence that the pathway to these disorders begins in childhood, with conduct problems, attention difficulties, high rates of aggressive behavior, and a persistent pattern of deviant and often illegal activity [7] that cause significant intra and interpersonal dysfunction across the lifespan. Thus reliable empirical identification of the variants of antisocial behavior shall improve our understanding of related disorders and enhance management and treatment efforts [20].

With respect to treatment, empirically supported interventions for children include psychoeducation, antisocial and pro-social behavior monitoring, behavioral parent training, family-based communication and problem-solving training, home-school liaison meetings and remedial tuition, child-based social problem solving skills training, parent counseling for managing personal and marital difficulties, treatment foster home placement when the family is extremely disorganized [8], contingency management, cognitive-behavioral intervention targeting social cognition deficits [13], community-based programs [22], and finally stimulant medication [13]. Research on effective interventions for adult populations indicated that psychodrama and personal construct therapy are potentially effective. A meta-analytic study, conducted by Salekin [19], indicated that psychoanalytic therapy has a success rate of 59%, cognitive-behavioral therapies have a success rate of 62%, whereas combined therapies have a success rate as high as 86%, suggesting that augmenting cognitive-behavioral with other psychotherapeutic techniques may be optimal for individuals with antisocial personality problems. Moreover, effectiveness, in this study, was also dependent on durations, with interventions lasting for more than 6 months being more effective than those which lasted for less than 6 months, and with intervention lasting for a year or longer having a success rates as high as 91% [19].

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Soft Cry

►Cooing

Soiling

►Encopresis

Solitary Constructive Play

► Constructive Play

Solution-Oriented Consultation

► Behavioral Consultation

Somatic Sensory Cortex

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Synonyms

Postcentral gyrus; Primary somatosensory cortex

Definition

The somatic sensory cortex, also referred to as the primary somatosensory cortex, is localized to the postcentral gyrus of the parietal lobes, just posterior of the central sulcus, and is vested with the job of processing information being transmitted from the periphery.

Description

The somatic sensory cortex is more commonly referred to as the primary somatosensory cortex. Neuroanatomically, the primary somatosensory cortex is localized to the postcentral gyrus of the anterior portion of the parietal lobes. The essential function of the primary somatosensory cortex is processing peripheral sensation of the contralateral side [2]. Specifically, stimulation of sensory receptors, whether it be in the skin, joints, muscles and/or viscera on the right side of the body, will be processed by the primary somatosensory cortex in the left hemisphere. Vice versa, sensation on the left side of the body will be processed by the primary somatosensory cortex in the right hemisphere [1]. Beyond this basic contralateral organization, the somatosensory cortex and linked sensory pathways are topographically organized. This is to suggest that adjacent areas on the receptive surface are mapped to adjacent fibers in white matter pathways and to adjacent regions of the cortex [2]. Specifically, the adjacent representation of the foot to the leg, the tongue to the face, and/or the hand to the face peripherally is also found on the somatosensory cortex. Somatotopic

representations of this arrangement commonly referred to as the sensory homunculus can be found throughout the literature. Essentially, beginning at the most superior point of the postcentral gyrus, that point at which it curves down into the longitudinal fissure, sensation from the genitals is processed. Next, by working inferiorly (i.e., up out of the longitudinal fissure and then down the side of the postcentral gyrus), comes the sensation processing points for the toes, feet, then legs, thighs, torso, neck, head, shoulders, arms, hands and fingers, face, teeth, tongue, pharynx and then abdomen [3, 4]. The site at which sensation from the tongue is processed sits on the cuff that is the sylvian fissure, which separates the parietal and temporal lobes.

In addition to the primary cortex there are secondary and tertiary somatosensory areas [5]. These regions lie posterior and/or inferior to the primary somatosensory cortex and serve as association points in which various incoming information may be integrated. In addition to it working in concert with secondary and tertiary zones, the primary somatosensory cortex is directly linked with motor areas of the brain in order to provide a reciprocal line of communication between one another such that feedback from the somatosensory system may be integrated into motoric processes thereby refining those actions [6].

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Somatization

► Psychosomatic

Somatoform

► Psychosomatic

Somatopsychic

► Psychosomatic

Somatosensory Area

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Synonyms

Somatosensory system

Definition

The somatosensory area refers to the neuroanatomical region at which the various aspects of the somatosensory system converge.

Description

The somatosensory area may be perceived as a general term for the primary regions of the brain that act as a convergence point of the entire somatosensory system. While some may use somatosensory area interchangeably with primary somatosensory cortex, the latter is likely one aspect of the former. From a holistic perspective, the somatosensory area encompasses the postcentral gyrus, which houses the primary somatosensory cortex, as well as adjacent areas of the parietal lobes [4]. These regions receive neuronal input from specific nuclei of the thalamus that correspond with the handling of sensation along the lines of touch, pain, temperature and limb position [4]. This includes the ventral posterior lateral nucleus as well as the ventral posteromedial nucleus [2]. Somatosensory information is transmitted to these nuclei from the spinal cord and specific cranial nerves which then transmit this information on to the somatosensory area. Given their role in this process, both the ventral posterior lateral nucleus as well as the ventral posteromedial nucleus represent relay nuclei in which they receive inputs from various pathways and then project that information onto other areas of the cortex, in this case the somatosensory area [2]. By the time somatosensory information reaches the thalamic nuclei it has already passed through the pyramidal decussation within the medulla. This leads to the contralateral organization of the somatosensory areas. Specifically, somatosensory stimulation on right side of

the body will be processed by the somatosensory areas in the left hemisphere whereas sensation on the left side of the body will be processed by the somatosensory areas in the right hemisphere [1]. Initial processes of the somatosensory area take place in the primary somatosensory cortex. The precise locality at which information is processed corresponds with the local area from which the stimulation originates. The somatosensory cortex and linked sensory pathways are topographically organized such that adjacent structures of the body correspond with adjacent structures on the primary somatosensory cortex [2]. Following this arrangement, somatosensory information originating at the genitals is processed at the most superior point of the postcentral gyrus; that point at which it curves down into the longitudinal fissure. Next, by working inferiorly (i.e., up out of the longitudinal fissure and then down the side of the postcentral gyrus), comes the sensation points for the toes, feet, then legs, thighs, torso, neck, head, shoulders, arms, hands and fingers, face, teeth, tongue, pharynx and then abdomen [3, 4]. Once this information is initially processed by the primary somatosensory cortex it is then transmitted on to the secondary and tertiary somatosensory areas as well as the motor areas of the frontal lobes [5]. It is at the point of the secondary and tertiary areas that somatosensory information is integrated with other sensory input and/or associated with various cognitive actions/processes. In terms of somatosensory areas transmitting information to the motor areas, this is done continuously, as refinement and coordination of the latter is largely dependent upon reciprocal feedback from the former [6].

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Somatosensory System

► Somatosensory Area

Soporifics

► Anxiolytics/Hypnotics

Sorrow

► Bereavement

Sorrowful

► Grieving

Sotos Syndrome

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Synonyms

Cerebral gigantism; Nonverbal learning disability (NLD)

Definition

Sotos syndrome is a rare genetic disorder characterized by early rapid bone growth that has an unknown rate of prevalence that is typically diagnosed in early childhood. A high percentage of children and adolescents with Sotos syndrome exhibit global cognitive difficulties and borderline levels of cognitive functioning.

Description

Sotos syndrome is a rare genetic disorder with an unknown rate of prevalence. Estimates for its rate of prevalence within pediatric neurology referrals suggest that it occurs in 17% of persons referred with macrocephaly [5]. The syndrome was initially described in the early 1960s and was also known as cerebral gigantism. The initial descriptions focused on two main characteristics, early rapid bone growth and global cognitive impairments. In addition, it was observed that children with Sotos syndrome appeared to have similar facial features. Many, but not all, cases of Sotos syndrome can be linked to the NSD1 gene mutation.

While current literature appears to indicate that cognitive functioning for children with Sotos syndrome may not fall in the range of mental retardation, recent investigations do suggest that individuals with Sotos syndrome, on average, perform in the borderline range on standardized measures of cognitive functioning [1]. Borderline cognitive functioning falls in the range of 71–85 inclusive. Evidence that individuals with Sotos Syndrome have lower than average cognitive abilities is consistent with early descriptions of the presentation of the syndrome [2]. The view that all or most individuals with Sotos Syndrome have lower cognitive functioning has been challenged by several authors over the past 20 years, with Sarimski [4] and Rutter and Cole [3] being examples.

Because of the low prevalence rate of the disorder, much of the literature surrounding it is comprised of case studies and meta-analyses. As a result, there have been case study reports of psychosis and other psychiatric disorders that may be isolated incidents within a small pool of cases. Studies with larger samples do provide some evidence that children with Sotos syndrome may be more likely to exhibit symptoms of anxiety than other children with mild to moderate cognitive impairments [4].

Physically, individuals with Sotos syndrome may present with hand and skull growth that is above the 90th percentile prior to age 3. These individuals may have distinctive angular facial features as well. As individuals with Sotos syndrome enter older childhood and adolescence, height, hand, and skull growth slows causing the individual to have a less atypical appearance. Individuals with Sotos syndrome may retain the angular facial features that were present in early childhood.

Individuals with Sotos syndrome are often referred to neuropsychologists and related specialists because of concerns related to developmental delays, behavioral problems, and possible psychiatric concerns. Individuals with Sotos syndrome may exhibit difficulties in general cognitive ability, executive functioning, and specific fears. Individuals with limited cognitive abilities may have greater difficulty in using adaptive strategies for managing stressful events associated with specific phobias. As a result, those working with individuals with Sotos syndrome may have to develop strategies that allow for individuals to escape particularly stressful or anxiety invoking situations.

Interventions for individuals with Sotos syndrome need to focus on the following domains: academic, emotional, and when warranted, adaptive functioning. As a result of the variation in cognitive functioning in individuals with Sotos syndrome, evaluations of cognitive functioning, possible anxiety symptoms and its triggers, adaptive functioning, and academic skills are necessary.

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Spanking

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Synonyms

Corporal (physical) punishment; Paddling; Smacking; Whipping

Definition

Spanking is a form of corporal punishment that usually refers to striking the buttocks with one's hand or other object (e.g., a wooden paddle, a switch, or ruler).

Description

Spanking as a form of discipline has likely been around for thousands of years. Currently, spanking by parents is illegal in 24 countries. In the United States, spanking by parents is permitted as long as excessive force is not used and it is not abusive in nature. Although some states prohibit spanking in schools, many states still allow corporal punishment by educators. It is estimated that as many as 1.5 million spankings occur each year in schools. Most professional organizations and international health organizations discourage spanking as a form of discipline and recommend less physical means of changing behavior.

Relevance for Childhood Development

Many American parents spank their children. They do so, primarily, because their children behave aggressively or fail to comply with their directions or commands. It is estimated that about 63% of parents spank their 1–2 year olds and 85% of adolescents have been spanked because of their

behavior. Although infrequent, mild, controlled spankings are unlikely to have any lasting negative effects, children who are exposed to repeated, harsh spankings may experience many negative side effects. Some of these include increased aggression, decreased quality of the parent–child relationship, anger/ hostility toward the spanker, and an increased risk of abusing their own children or their spouse. Perhaps more troubling is that mothers who spank their children are three times more likely to engage in abusive behaviors including beating, kicking, hitting, burning, or shaking a child less than 2 years old. The likelihood of abuse increases as the frequency of spanking increases.

There is no question that spanking is effective for producing short-term compliance in children. That is, immediately following a spanking, children are much more likely to be compliant. However, spanking does not teach a new behavior (that is, what the child should be doing instead of the inappropriate behavior) nor does it produce long-term benefits. Also, spanking is not an intervention that one could use, or should even want to use, on more than an infrequent basis. There are other child behavior management techniques that are equally or more effective (e.g., time-out, response cost, overcorrection) that do not involve a physical punishment component. If parents insist upon spanking as a disciplinary technique, they should be encouraged to use the controlled spanking procedure that involves an open hand on the buttocks, leaving no marks or bruises, as a back-up technique for non-physical disciplinary measures, and used in conjunction with reasoning and within a loving family atmosphere.

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Spasm

► Tics

Spatial Ability

► Spatial Intelligence

Spatial Intelligence

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Synonyms

Gardner's theory of multiple intelligences; Spatial ability; Spatial reasoning; Visual-spatial reasoning

Definition

Spatial Intelligence is the capacity to envision, reason with, and recall nonverbal, symbolic information.

Description

Spatial intelligence involves the use of reasoning and memory skills with nonverbal, symbolic information. It has also been long thought of as an important component of general intelligence. Howard Gardner's popular theory of multiple intelligences defines it as the ability to perceive the visual-spatial world [3]. Others have further broken down spatial intelligence as comprising subcategories which typically include spatial perception, mental rotation, spatial visualization, and object location [2, 4].

As Linn and Peterson described in their meta-analysis, spatial perception involves examining spatial relationships in relation to their own orientation, such as having to place a rod vertically while looking through a tilted or rotated frame [4]. Mental rotation involves mentally rotating two and three dimensional objects, such as determining whether an object is identical to a rotated reference object. Spatial visualization involves the use of both spatial perception and mental rotation to solve more complicated mental manipulations where more than one solution may be possible, such as paper folding and block design tasks. Object location requires recall of object positions documented. As of yet, however, a well agreed upon categorization of spatial abilities does not exist [2], but most researchers do tend to agree that there is more than just one type of spatial ability [1].

There has also been debate over the existence and emergence of sex differences found on measures of spatial intelligence. The pendulum has, over the years, swung back and forth on whether observed sex differences are due to environmental factors, such as test development and stereotypes [1, 6], or to biological factors, such as neurophysiology and evolution [2]. Research has generally documented differences favoring males, with the most robust evidence on mental rotation tasks [4], while differences favoring females have been typically found on object

location tasks. Men have also been found to rate their spatial abilities higher than women [5].

Relevance to Childhood Development

Researchers have also studied spatial intelligence in children. Over the years, researchers have debated about the emergence of the male advantage, with some contending for adolescence and others arguing for an earlier emergence [4]. Regardless, spatial abilities develop when children are given opportunities to manipulate and explore objects. It is reasonable to suggest that differential spatial abilities could be due to differential opportunities to explore the environment. Teachers are taught principles in differential teaching strategies that recognize that no student is alike in that some may have more developed skills (e.g., spatial intelligence) than others. Therefore, it is reasonable to suggest that children found to have less developed spatial skills should be given more opportunities to develop these skills.

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Spatial Reasoning

► Spatial Intelligence

Speaking

► Verbal Skills

Special Education

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Synonyms

Exceptional education; Individualized education; Individuals with disabilities education act (IDEA); Special services

Definition

All children are entitled to an education. Children with disabilities, however, require special or extra adaptations and services to enable them to benefit from their educational program. According to the Individuals with Disabilities Education Improvement Act of 2004 (IDEIA), special education means specifically designed instruction, at no cost to the parents, to meet the unique needs of a child with a disability.

Special education services are the direct instructional activities or special learning experiences designed primarily for students identified as having exceptionalities in one or more aspects of their development, or as being under-achievers in relation to their overall abilities. Categories of disability include: mental retardation, specific learning disabilities, serious emotional disturbances, speech or language impairments, vision loss, hearing loss, orthopedic impairments, other health impairments, deafness-blindness, multiple disabilities, autism, and traumatic brain injury. Programs for the gifted and talented are also included in some special education programs.

Description

The provision of special education services has a long and somewhat litigious history. Gaining power from the equal rights obtained in *Brown vs. Board of Education* (1954), special education enacted the Education for All Handicapped Children Act (Public Law 94–142) in 1975. PL 94–142 was the first Federal law to hold states responsible for educating school-age children with disabilities just as they had for children not labeled with a disability. Today, the Individuals with Disabilities Education Improvement Act of 2004 (IDEIA, also referred to as IDEA), which updated the Individuals with Disabilities Education Act (IDEA) of 1997, describes six principles that engender the framework of educational practices that are used to enable children with disabilities to learn. Without the procedural framework set out by law, the needs of many children with disabilities would likely not be met. These principles are: zero exclusion,

nondiscriminatory evaluation, appropriate education, least restrictive environment (LRE), parent and student participation, and procedural due process.

Zero Exclusion

This principle requires a free appropriate public education to *all* children, regardless of type or level of disability. No child may be excluded from an education provided at the local educational agency's (LEA) expense. Zero exclusion acknowledges that all children are able to learn and benefit from an education, and therefore the public school system must educate them by meeting their unique needs and help prepare them for a meaningful and integrated life in the community.

Nondiscriminatory Evaluation

The nondiscriminatory evaluation (NDE) process is an essential starting point for planning an educational program for a child with a disability. The intent of NDE is twofold: to assess if a child has a disability, and then to identify the types of special education and related services the child should receive. NDE requires that the assessments, tests, and other measures of academic and developmental functioning must be objective and free from cultural and/or ethnic bias. IDEA also requires that assessment instruments be used for the purpose for which they were validated (e.g., an IQ test is not appropriate for curriculum planning), that a multidisciplinary assessment team considers information from multiple sources, and that assessments must be administered in the child's primary or native language.

The criteria for receiving special education and related services are twofold. First, the child must have a disability that is included in IDEA. Secondly, the child's disability must sufficiently interfere with learning so there is a need for special education and related services. These two factors make a child eligible for classification. Some children with disabilities who do not meet special education eligibility criteria can be supported through another federal program, Section 504 or the Americans with Disabilities Act, which provides for reasonable accommodation to enable them to access their education.

Appropriate Education

IDEA 2004 provides for a *free and appropriate public education* for each child classified as in need of special education and related services. It is free because it is provided at no cost to the parents and it is considered appropriate because it meets the individual needs of the child. Once a child aged 3–21 is classified as in need of special education and related services, a team of

professionals appropriate to that child's specific learning needs convenes to develop a written individualized educational program (IEP). For children birth to 2 years old, the plan is called an Individualized Family Service Plan (IFSP). Each individualized program is developed by professionals and the child's parents. The overall purpose of the plan is to design and deliver an IEP from which the child will benefit in accordance with IDEA.

Minimally, the child's IEP team must consist of a special education teacher, a general education teacher (if the child is participating or may be participating in the general education program), and a representative of the LEA who is knowledgeable about both the special needs of children with disabilities and about the general curriculum of the district. Additionally, the IEP team must include a professional who is qualified to interpret the results of the NDE. The IEP document provides for consistency in service delivery for the school district and a communication vehicle between parents and school personnel. The IEP must include: (a) present levels of educational performance; (b) measurable annual goals, including short-term objectives; (c) the special educational and related services and supplementary aids and services that will be provided to the student, and the program modifications or supports for school personnel that will be provided so that the student can make progress toward their annual goals, participate in the general curriculum and non-academic activities of the school, and be educated and participate with other students who do not have disabilities; (d) the extent, if any, to which the student will not participate with students who do not have a disabilities in general education and other non-academic activities; (e) any individual modifications in the administration of state-or district-wide assessments of student achievement so that the student can participate in those assessments, or if the IEP team determines that the student not participate why that decision was made and how the student will be assessed; (f) the projected date of beginning the services and program modifications and the anticipated frequency, location, an duration of each; (g) transition planning beginning at age 14; and (h) how the student's progress toward their annual goals will be measured and how the student's parents will be informed of progress toward annual goals, and the extent to which the student progress is sufficient to achieve the annual goals by the end of the school year.

According to IDEA, related services include, but are not limited to areas such as: transportation, speech-language pathology and audiology services, psychological services, physical and occupational therapy, recreation, social work services, counseling services, rehabilitation

counseling, orientation and mobility services, and medical services (for the purpose of diagnosis and evaluation for special education).

Least Restrictive Environment

IDEA 2004 provides that children with special needs be educated to the maximum extent appropriate with children who do not have disabilities and that the removal of children with disabilities from the regular education environment occurs only when the nature or severity of the disability is such that education in regular classes, with the use of supplementary aids and services cannot be achieved satisfactorily. This component of IDEA is called the least restrictive environment (LRE). A continuum of placements is available, including: (a) general education classroom, (b) general education classroom with a special education teacher as a consultant to the general education teacher, (c) general education placement with resource room for specialized instruction, (d) special education class placement with some general education classes, (e) full-time special education class within a general education school, (f) separate special education school placement, and (g) home or hospital-school setting. The further away from a general education environment, the more restrictive the placement. The LRE appropriate for each child is determined by the IEP team which includes the child's parents. However, it is important to note that IDEA has a presumption in favor of inclusion. Thus, an LEA is supposed to provide for all the necessary adaptations, supplementary aids and supports, for the child in the LRE before a determination is made that a change in placement to a more restrictive setting is needed.

IDEA also provides for infants and toddlers (birth – 2) to receive services in *natural environments*; that is settings where children without disabilities are educated. These natural environments could include the infant or toddler's home, full-or part-time placement in public or private general pre-schools, or in special needs private schools.

Parent and Student Participation

The intent of IDEA is to have parents involved in all aspects of their child's education, especially regarding evaluation, IEP development and IEP team meetings. Parent participation is critical in the development of an appropriate education. Essentially, any time a decision is made that affects the free and appropriate education of their child, a parent must be notified and have the right to participate in decision-making. They have the right to see their child's evaluations and records, and school district general records about special education. Parent participation is also facilitated at the state level; for example,

parents are entitled to participate in statewide special education planning processes, must make up a majority of the membership of the statewide council on special education, and have the right to see the state's special education plan and receive public notice of hearings on the plan. Further, students themselves have a right to be members of their IEP team and are encouraged to do so, regardless of the level of their disabilities. Preparing students for meaningful participation on their IEP team can make students ready for constructive participation as adults in their community.

Procedural Due Process

IDEA provides a system of accountability and safeguards that must be followed to insure that a student with special needs receives a free and appropriate education; this system is called procedural due process. Parents have the right to be informed about possible changes in their child's free and appropriate public education including IEP, placement, and to consent or withhold consent from actions the school district wishes to take regarding their child. Parents must receive written notice of their due process rights at the initial referral of their child for evaluation, and upon notification of meetings regarding their child. Importantly, parents must also receive written notice of their right to file a complaint about the LEA's violation of their child's rights. All notices must be in a communication medium the parents understand. IDEA entitles parents to mediation services to resolve issues with the LEA and they have the right to a due process hearing before an impartial person. The losing party has the right to appeal to higher authorities.

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Special Needs

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Synonyms

Disability; Special education needs

Definition

The term “special needs” is an umbrella term referring to a variety of developmental disabilities. Special needs can include learning disabilities, visual impairment, hearing impairment, cerebral palsy, ADHD, physical limitations, asthma, Asperger's Syndrome, and Autism. Although the term includes gifted academic ability, people often limit the discussion to what the individual cannot do. In general, the term “special needs” is applied when a person needs services not usually provided to all citizens. For example, most school children are not provided physical therapy in the school. Therefore a child who does receive PT at school may be considered a special needs child.

Description

Government Programs

Most societies create mechanisms to help persons with special needs. There is a wide variation based on culture, economics, and type of government. These factors also determine the mix between government and non-government programs. In the US, there are numerous government organizations (GOs) which provide money and services to persons with special needs. Financial support is provided for persons with special needs by the social security administration (SSA). The SSA determines whether a person fits their definition of “disabled,” and if so, provides financial assistance.

Health care is often provided by Medicare, which uses the same definition of “disabled.” It is administered by the Centers for Medicare and Medicaid Services (CMS), a branch of the federal government. Another program which uses disability as a criterion is Medicaid. Medicaid is centrally overseen by the CMS, but administered and partially funded by the states. Medicaid coverage is primarily driven by income level. Because many disabled individuals have low incomes, they may qualify for Medicaid. Many states also have vocational and job facilitation programs, although there is a wide variation from state to state.

Special Education Needs

► Special Needs

The two largest health care entities in the US fall under the Veterans Administration (VA) and Department of Defense (DoD). The VA provides healthcare as well as income to many disabled veterans. The VA uses different criteria for evaluating special needs, assessing percentages for various conditions. They also grant care only for conditions which arose during military service.

The DoD provides healthcare to active duty military, their families, and military retirees. Obviously the disabled veteran population and the military retiree population overlap. Special needs situations can arise in any segment of the military population. Military families can have special needs spouses and children, and the military has the Extended Care Health Option, a program which pays for special health care needs, as well as providing integrated services like case management.

Services for persons with special needs may also be provided by local government entities. Many US cities have special transportation services adult and child day care services, and meal programs.

Non-Governmental Programs

Persons with special needs can benefit from the efforts of non-governmental organizations (NGOs) which operate at many levels. International organizations such as the Gates Foundation, Lions Clubs, Rotary International, and numerous church groups can provide micro-level services to individuals and communities, or they may provide macro-level functions, such as funding medical research. There is a complex web of relationships between NGOs, other NGOs, and GOs, as they transfer money in the form of grants, and exchange information. In many cases NGOs are regulated by GOs through statute.

NGOs may also function at the national level. A good example of this is the March of Dimes, which focuses on the health of babies in the United States. Like the international NGOs, the March of Dimes performs research, provides services, educates, and advocates.

State and local-level NGOs also perform important functions. They may offer financial assistance, volunteer services such as babysitting, and educational and outreach services.

It can be difficult for a special needs family to negotiate the complex web of services and financial aid offered by this myriad of organizations. Regardless of whether the helping organization is governmental or non-governmental, or at what level it functions, a key component is informing and educating special needs families so they can best avail themselves of the services available.

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Special Services

► Special Education

Specific Developmental Disorder of Motor Dysfunction

► Developmental Coordination Disorder

Specific Exploration

► Active Exploration

Specific Folkways

► Cultural Difference

Speech

► Verbal Skills

Speech and Language Disorders

► Communication Disorders

Speech Sound Disorders

► Phonological Disorders

Speech Therapy

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Synonyms

Articulation voice, or fluency therapy; Speech–language therapy

Definition

Speech therapy is the treatment of an individual for a disorder in one of three speech domains: articulation, voice, or fluency. Treatment is typically provided by a speech–language pathologist (SLP), often known as a speech therapist. Speech–language pathologists hold a master’s degree and have advanced education in human communication, state license or certification, and are nationally certified by the American Speech-Language-Hearing Association (ASHA).

Description

Speech therapy is the treatment of an individual for remediation of a diagnosed speech disorder. After an in-depth diagnostic assessment has determined the presence of a speech disorder or delay, treatment is prescribed on an individual basis. Speech, a verbal means of communicating, includes articulation and phonology (the production and meaning basis of speech sounds), voice (the use and quality of the vocal folds, nasal resonance, and respiratory support) and fluency (the flow and rhythm of speech). A speech disorder may include a delay in development or disorder in any of these three areas to the point that a listener cannot understand, is distracted from what is said, or speech is painful or embarrassing to the speaker. Speech disorders are most commonly associated with articulation or phonological disorders. Articulation disorders are associated with a deficit in motor production aspects of speech. Phonological disorders are concerned with a deficit in producing appropriate speech sounds in context to demonstrate understanding and use of the phonological rules of a language. Voice disorders are associated with abnormal voicing during speech characterized by harsh, breathy, strained vocal quality, or lack of voice,

nasality/resonance, or volume or pitch disturbances. These disturbances are often the result of misuse, abuse, overuse, or pathology of the vocal folds but may also be psychogenic in nature. Fluency disorders are typified by a disruption in the flow and rhythm of speech characterized by excessive production of repetitions, blocks, or prolongations and disturbances in the speed or rate of speech. Speech therapy is prescribed or sought for the remediation of these deficits in articulation, voice, and/or fluency [1].

Speech therapy is usually provided by a certified speech–language pathologist, and is typically guided by treatment goals determined during the diagnostic assessment and in conference with invested parties, such as the family, teachers, physicians, and client. Therapy is provided either in individual sessions, in which the client works one-on-one with the speech–language pathologist to address treatment goals, or in groups, wherein a number of clients attend joint treatment sessions to address treatment goals. To address treatment goals, a treatment approach or program is employed. Treatment approaches are built on theoretical paradigms and developmental, physiological, or normative data. The selection of a treatment program or treatment principles should be based on empirical evidence of effective treatment in clients with similar deficits and characteristics. Speech therapy generally includes the step-wise remediation of specific deficit skill-sets using behavioral treatment techniques. Therapy techniques may make use of mirrors, recordings, video feedback, self-evaluation, diaries, games, toys, pictures, tongue blades, and other materials or biofeedback [2].

Speech therapy is often needed in populations that present with hearing impairments, developmental delays, cleft palate or lip, oral muscle insufficiency, autism, traumatic brain injury, and respiration and motor planning deficits. Speech therapy may also be warranted in otherwise typically developing children who present with a delay or disorder in the development of speech, voice, and/or fluency skills. Young children who have difficulty being understood may experience frustration and withdraw from communicating. Early assessment and intervention by a speech–language pathologist will help to alleviate frustrations for both the speaker and the listener. In general, the earlier one begins therapy after the diagnosis or insult that propagated the disorder, the better the prognosis of correcting and mitigating effects of the deficit [3].

Language therapy differs from speech therapy although deficits in both language and speech may coexist and be treated simultaneously, concurrently, cyclically, or blended together in a therapy session [4].

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Speech–Language Therapy

► Speech Therapy

Speed

► Dextroamphetamine (Dexedrine, Dextrostat)

Speed Naming

► Rapid Automatized Naming

Spelling Disabilities

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Synonyms

Agaphia; Anorthography; Dysgraphia; Learning disability; Logagraphia

Definition

A neurologically-based impairment that affects an individual's knowledge of and memory for spoken and written language structure.

Concept of Spelling Disability

Individuals with spelling disability generally have difficulty analyzing and remembering sounds of the letters

(e.g., j, v, s), syllables (e.g., pos, com, mem) and meaningful parts such as prefixes, roots, suffixes, and grammatical endings (e.g., pect, able, trans) of words in both spoken language and written language. Individuals with spelling disability have trouble remembering letters in words because they have trouble noticing, remembering, and recalling the features of language that those letters represent. Spelling disability is also identified as orthographic memory problem because of an individual's difficulty with memory for letters in written language [10].

Phases of Spelling Development

Since children's knowledge of the English spelling system follows a progressive pathway, spanning from novice to expert applications of letters, syllables, and meaningful parts of words [1], Ehri [4] classifies children's knowledge of the English spelling system into three distinct stages, semiphonetic, phonetic, and morphemic. Semiphonetic spellers generally rely on knowledge of letter names to generate spellings of words. Semiphonetic spellings therefore reflect an emphasis on boundary letter sounds (consonants) and an oversight of the medial sounds (vowels) because of reliance on sounds in letter names (e.g., WTR to spell *water*). Phonetic stage spellers, unlike the semiphonetic stage spellers, tend to represent vowels and increased number of consonants in their spellings of English words. Advancement in their ability to connect letter names to their constituent sounds causes phonetic spellers to overemphasize letter sounds in spellings of individual words (e.g., BALAOSIS to spell *blouses*). Morphemic stage spellers move away from an exclusive reliance on letter-sound relations to use of word-based spelling patterns such as prefixes (e.g., in - *inadequate*), suffixes (e.g., able - *acceptable*), base words (e.g., *sign* - *signal*), consonant doubling (e.g., *flop* - *flopped*), and derivational relationships (e.g., *critic* - *criticize*).

The last three stages of Henderson's [8] spelling development model, within-word pattern, syllable juncture, and derivational constancy, are subsumed within the morphemic stage of Ehri's [4] spelling development model. Henderson's subdivisions of children's morphemic skills highlight transition of spelling development from an alphabetic base to a word-based and meaning-bearing subunit level. At the within-word pattern stage, spellers acquire knowledge of complex groups of letters, including vowel-consonant-silent e patterns (e.g., *rake*, *time*) and vowel digraphs (e.g., *train*, *bought*). Spellers acquire understanding of complex word-based patterns that support spelling of single-syllable words. Syllable juncture spellers, comparatively, learn use of consonant doubling (e.g., *hop* - *hopping*), prefixes (e.g., *im* - *immature*), and

suffixes (e.g., *ance* – *maintenance*) to spell multisyllabic words. The derivational constancy stage involves spelling of base and root words (e.g., *bene* – *beneficial*, *benevolent*, *benediction*).

From the preceding description of the phases of spelling development, it can be concluded that accurate spelling of words can take place when children learn to form consolidated connections between letter units (i.e., syllables) in written words and their sounds in pronunciations. Although good spellers can form complete connections between letter-sound units in words, which then facilitate accurate spelling of words, individuals with spelling disability often fail to establish full connections between letters-and-sounds in words which then constrain their ability to spell words accurately.

Research on Spelling Proficiencies

In recent years, researchers have compared spelling performances of individuals with and without spelling disability to determine similarities and differences in their ability to represent letter-sound relationships in spellings of different types of words. Manis et al. [9], for example, compared the phonological, orthographic, and spelling skills of children with and without dyslexia. Spelling processes were measured with a pseudoword spelling task (e.g., /vam/, /wifest/, and /flith/) and an irregular word spelling task (e.g., *people*, *enough*, and *business*). Orthographic processing was measured with two tasks, orthographic verification and homonym verification. The orthographic verification task required that on seeing spellings like, *woman*, *surprise*, and *library* (i.e., accurate spellings) or *streat*, *throte*, and *cumpleat* (i.e., inaccurate spellings) on a computer screen, children press “yes” or “no” to indicate whether the spellings were correct or wrong. The homonym verification task required that children identify a homonym as correct (e.g., “Monday is the first day of the week.” – *week*) or incorrect (e.g., “The bear was hungry.” – *bare*) after listening to a sentence read aloud by the experimenter and viewing display of a homonym. Phonological processing was measured with two tasks, phoneme deletion and pseudoword pronunciation. The phoneme deletion task asked children to repeat a pseudoword (e.g., *blif*) pronounced by the experimenter and to then pronounce the same pseudoword without one of the phonemes (e.g., *blif* without the /f/ – *bli*). The pseudoword pronunciation task asked children to pronounce pseudowords (e.g., *yaid*, *skoce*, *metion*). Data analyses indicated that the age-matched and reading-level matched children scored significantly higher than children with dyslexia on phonological, orthographic, and spelling tasks.

In an additional study focused on spelling development, Swanson and Ramalgia [13] compared the spelling performances of seventh, eighth, and ninth grade children with learning disabilities and reading-level-matched and spelling-level-matched younger elementary grade children without learning disabilities. Children were administered three graded word lists, one matched to their spelling level and two lower than their spelling level. Each graded list included 10 phonetic (i.e., regular word patterns) and 10 nonphonetic (i.e., irregular word patterns) words. Spellings of regular and irregular words were analyzed by classifying misspellings into three categories: semiphonetic errors – omission of medial and vowel sounds (e.g., *lidl* for *little*); phonetic errors – vowel substitutions (e.g., *fullist* for *fullest*), omission of silent letter (e.g., *new* for *knew*), and substitution of consonant grapheme for a phoneme (e.g., *wher* for *wear*); and morphemic errors – consonant doubling (e.g., *wadding* for *wading*), addition of an inaccurate marker letter (e.g., *ris* for *rice*), two vowel letters for long vowels (e.g., *tier* for *tire*). Analysis of regular and irregular word misspellings indicated that children with and without learning disabilities, who had lower scores on a standardized spelling test used to select and classify study participants, produced higher number of semiphonetic errors with an over reliance on boundary letters and slighting of the medial letters. Comparatively, children with and without learning disabilities, who had higher spelling score on the standardized test, produced misspellings that were phonetic in nature and exhibited overgeneralization of letter-sound relationships. Morphemic errors produced by children with and without learning disabilities were comparable.

Instruction for Spelling Development

Individuals with spelling disability generally do not use appropriate strategies to spell words and are not efficient at spelling words accurately without instruction [6]. Therefore, explicit spelling instruction is essential for developing poor spellers’ ability to spell words accurately [3] and spelling instruction should emphasize knowledge of the language structure, specifically knowledge of sound-letter combinations and spelling patterns [7]. Furthermore, individualized instruction is recommended because successful learning of spelling patterns requires that teaching be adjusted to the cognitive abilities of the learner [2]. Consequently, teachers are advised to be mindful of the number of words selected for instruction of individuals with spelling disability. Careful selection of words is vital because individuals with spelling disability, compared to individuals without spelling disability, generally require more time to learn spellings of fewer words [12]. Morris,

Blanton, Blanton, and Perney [11] also suggest lowering of the difficulty level of spelling words to facilitate learning of an appropriate number of words matched with disabled spellers' knowledge of and memory for spelling patterns in words. In sum, improved spelling performance requires that individuals with spelling disability receive (a) sufficient time to learn word spellings, (b) feedback for correcting misspellings, and (c) spelling practice with minimum teacher supervision [5].

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Sperm

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Synonyms

Male gamete; Male germ cell; Spermatozoa; Sperm cells

Definition

Male reproductive cells

Description

Human sperm are invisible to the naked eye and consist of three parts. The head of the sperm is called the acrosome and contains 23 chromosomes, the father's genetic contribution to the offspring. The chromosomes contained inside the sperm will determine whether the offspring is male or female. The head also holds enzymes that will help the sperm penetrate the outer layer of the egg. The short midsection of the sperm, or body, contains mitochondria to fuel the sperm's journey to the egg. The longest part of the sperm is the mobile tail, or flagellum, which propels the sperm forward.

Sperm production begins when testosterone, luteinizing hormone (LH), and follicle-stimulating hormone (FSH) activate the male testes during puberty. Spermatogenesis, or the creation of sperm, works best when the temperature of the testes is lower than that of the body. For this reason, the testes hang away from the body in the thin skin of the scrotum. Sperm maturation takes 72–74 days. Sperm will grow in the testes for several weeks, then move from the rear of each testicle to the epididymis, where growth continues for another 2–21 days. Mature sperm move through a small tube called the vas deferens into the seminal vesicle, where they are temporarily paralyzed by carbon dioxide. The seminal vesicle and prostate secrete fluids that will join with the sperm to become seminal fluid (or semen). At ejaculation, sperm and seminal fluid move through the vas deferens and to the urethra, a tube inside the penis, from which they are released. A typical ejaculation includes an average of 100–300 million sperm, with about 75% being motile and even fewer being healthy enough to fertilize an egg.

Sperm die quickly outside of the body, and only survive from 3 to 5 days in optimal conditions, which can be a challenge. Lubricants, saliva, and urine kill sperm. In the vagina, high acidity levels are detrimental to sperm, slowing their movement or killing them. During ovulation, a woman secretes cervical fluid that lowers the acidity of the vagina, assisting sperm in their journey. Similarly, the alkaline seminal fluid protects sperm against the acidic vagina and provides fructose to help fuel the sperm's journey.

Sperm must travel through the cervix and into the uterus, which is less acidic but contains white blood cells that can destroy the sperm. From the uterus, sperm enter one of the two fallopian tubes located on either side of the uterus. Chemical signals provide some information to sperm about where the egg is located, although many

sperm enter the wrong tube. Cilia within the fallopian tube move the egg toward the uterus, creating a current against which sperm must swim and a trap that sperm must avoid. In addition to these environmental hazards, if sperm from two different males are inside the reproductive tract simultaneously, the sperm will engage in a competition for fertilization. Ultimately, only a few hundred sperm reach the egg.

During this journey, sperm move an average of two to three mm per minute; however, there is individual variability. In addition, some sperm pause temporarily at the cervix or outside of a fallopian tube. Having sperm arrive at different times increases the chance that a sperm will be present during the short 24 h lifespan of an egg. Sperm containing a Y-chromosome, coding for a male offspring, are lighter and tend to travel faster; however, they also live for a shorter period of time. Sperm containing an X-chromosome, coding for a female offspring, are slower but harder.

To enter the egg, sperm must cross the tough outer membrane of the egg called the zona pellucida. Enzymes in the acrosome break down this wall over a period of around 20 min. The sperm must then penetrate the inner part of the egg, gaining access to the egg's genetic material. The sperm's tail detaches and the head dismantles to allow fertilization, and the resulting cell is a zygote.

Sperm quality varies widely over the course of the day. Abnormal sperm are the most common cause of male infertility. Several factors can affect the quality, mobility, and number of sperm. For example, hormonal imbalance, environmental toxins, poor nutrition, illness, stress, and high testicular temperature have all been linked to spermatogenesis failure. Research has revealed that substances such as nicotine, cocaine, marijuana, steroids, and excessive amounts of alcohol reduce a man's sperm count and quality. Legal and illegal medications also can impact male fertility. These findings suggest that both mothers and fathers play a critical role in conception.

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Sperm Cells

►Sperm

Spermatozoa

►Sperm

Spew

►Purging

Spinal Cord

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Definition

The spinal cord is one of the two major divisions of the Central Nervous System (CNS), in addition to the brain, which connects rostrally to the inferior portion of the medulla and extends down the back serving as a primary highway in which signals are sent in between the CNS and Peripheral Nervous System (PNS).

Description

The spinal cord, in combination with the brain, constitutes the two primary structural divisions of the CNS which play different roles in carrying out functions. Structurally, the spinal cord has thirty segments divided amongst four divisions (Cervical, Thoracic, Lumbar, and Sacral divisions) and one additional Coccygeal segment. Each segment has a spinal nerve on both the right and left that are essential in the transmission of impulses to and from the CNS from and to the PNS (nerves outside of the CNS), musculature, and other body regions and structures [1]. In this way, the spinal cord may be viewed as the express communication highway providing a link between the body experiencing and receiving sensations and the

brain which perceives and interprets this information. This illustrates a bottom-up transmission however a top-down transmission occurs via the spinal cord as well. Specifically, neurological impulses regarding functions, such as movement, originate in the brain and are transmitted down through the spinal cord to the peripheral structures which will serve to carry out the movement. Given its role in both the reception of sensation and the transmission of motoric output, damage to the spinal cord may cause deficits within either domain [2]. For example, damage to the spinal cord can lead to complete or partial loss of sensation and/or movement in those systems and areas outside of the CNS. Furthermore, the nature of the impairment corresponds with the location and degree of insult. For example, complete damage of the spinal cord at the Cervical level (i.e., highest level) can lead to quadriplegia (i.e., loss of all movement and sensation below the neck) whereas partial damage may simply cause weakness in movement or a decrease in sensation perception. Furthermore, complete damage at a lower level may merely cause paraplegia (i.e., loss of all movement and sensation below the waist) whereas partial damage may again simply cause weakness in movement or sensation from the waist down.

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Spinal Cord Contusion

► Spinal Cord Injury

Spinal Cord Injury

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Synonyms

Cord injuries; Post-traumatic myelopathy; Spinal cord contusion; Spinal cord laceration; Spinal cord transection; Spinal cord trauma; Spinal injuries

Definition

A spinal cord injury (SCI) may stem from traumatic damage to the spinal cord which results in a bruise (contusion), a partial tear, or a complete tear (transection) in the spinal cord. Non-traumatic SCI may be caused by an infarction (stroke), arthritis, cancer, blood vessel problems or bleeding, inflammation (transverse myelitis), infections (meningitis), disease, or degeneration of the disks and vertebrae in the neck (cervical spondylosis). The damage may cause a loss of sensation (feeling) and motor (muscular) control and may result in paralysis.

Description

Spinal cord injuries affect the whole body; however, impairments in sensation and/or motor ability typically occur below the site of the injury. For this reason, some persons have altered functioning in their legs and lower body only (paraplegic), while others have altered functioning involving all four limbs (tetraplegic). As such, SCI is classified according to the child's degree of loss of motor and/or sensory function.

Pairs of nerves are connected to the spinal cord in the space between two adjacent vertebrae. The nerves are named for the vertebrae where they exit the spinal cord. There are five sets of these nerves and they are defined as follows: (1) C1-8 nerves exit the spinal cord in the cervical region or in the neck; (2) T1-12 nerves exit the spinal cord in the thoracic region, or the chest; (3) L1-5 nerves exit the spinal cord in the lumbar region or the lower back; (4) S1-5 nerves exit the spinal cord in the sacral region or near the pelvis; and, (5) the coccygeal nerves exit the spinal cord near the coccyx, or tailbone [1].

Injury to the spinal cord may damage any one or more of these nerves. When nerves are damaged, functions such as urination, sexual function, sweating, blood pressure, etc., may be affected. Symptoms of spinal cord injuries may include muscle weakness, loss of voluntary muscle movement, breathing problems, loss of feeling, and loss of bowel and bladder function.

Diagnosis of SCI is made with a comprehensive physical examination, a study of symptoms, and diagnostic testing. Diagnostic tests may include X-rays, computed tomography scans (CT scans), and magnetic resonance imaging (MRI) scans of the spinal area.

Initial treatment for spinal cord injuries is immobilization. Steroid injections may be given to reduce inflammation and swelling. Currently, no treatments are available to make a spinal cord grow back to its pre-injury condition. However, some patients with SCI do recover at least a portion of their ability to move and/or feel below the level of injury. Rehabilitation focuses on

fostering independence and reintegration into the community by helping individuals with spinal cord injuries avoid complications and optimize those bodily functions they do control to aid in mobility and movement. Accurate predictions of prognosis for SCI, particularly in the acute phase, are very difficult. Current evidence suggests that recovery, if it occurs, typically transpires on a timeline that starts between a week and 6 months after injury. Impairment remaining after 12–24 months is likely to be permanent. However, there are case reports of small improvements occurring for up to two years or longer.

In the United States, approximately 10,000 individuals sustain a SCI each year. Approximately 3–5% of those injuries occur among children younger than 15 years of age and 20% are younger than 20 years. Motor vehicle accidents are the main cause of injury in pediatrics with medical/surgical complications, violence, falls, and sporting accidents also contributing [2].

Relevance to Childhood Development

The psychological challenges children face are different from those seen in adults with similar injuries. Children respond to their injury according to their developmental stage at the time, and this response continues to change as the child grows.

A major factor to consider in any child's mental health is the influence of the family members on the child's psychosocial adjustment process and vice-versa. In order to provide adequate emotional support, it is essential to pay attention to the unique and different challenges faced by each individual family member in addition to the ones the family faces as a whole.

The parents or caregivers of a child with SCI are often traumatized. They can experience feelings of anger, sadness, and guilt. They must learn a great deal of medical information about how to care for their child, while simultaneously providing emotional support. It is often the case that the caregivers have a difficult time parenting their child in the same way as before the injury. Specifically, parents frequently respond to the new situation by being overprotective and setting fewer limits or providing less discipline.

During the initial hospital stay and on an ongoing basis, the parent/caregiver must constantly ensure that the appropriate and necessary modifications are made at home, at school, and at any other location to where the child travels. In addition, the caregiver will likely face financial challenges secondary to possible employment changes and extensive medical, equipment, and therapy bills. Finally, after the initial learning and adjustment process has been conquered, the parents/caregivers need

to support their child in creating future life goals and a plan to meet those goals. Even though it is common for parents/caregivers to have difficulty letting go of their child as she or he grows up and develops, that transition can be even more challenging when the child has a chronic physical disability.

Children with SCI experience unique challenges that can change depending on their age. When the child is injured at birth or in early childhood, he or she relies largely on the parents or caregivers for total support. At school age, the child is developing their sense of identity and can feel anxious or sad as a result of their physical limitations and having a perceived lack of control over their environment. The child is also learning how to socialize with peers. During adolescence, body image, sexuality, driving, and peer relationships become central issues. Emotions run high during this developmental stage in general and the teen with SCI is no exception. It is the job of adolescents to learn to separate from their parents/caregivers and to take on increased responsibility for their own medical care.

The transition to adulthood (including medical, social, emotional, financial, educational, vocational, and leisure aspects) is a process through which the young adult must navigate with support from her/his parents/caregivers and medical team.

The whole family of a child with SCI will likely go through some changes. It is important to take into consideration the way the family was functioning before the injury occurred, as this will affect their functioning moving forward. There may be a shift in the family dynamics, including marital, sibling, and parental relationships, as a result of the child's SCI. The increased amount of time it takes to care for a child with SCI takes away from leisure time. This decrease in "play time" occurs for the child, the siblings, and the parents/caregivers.

The overall goal in pediatric SCI is to return the child and the family as quickly and fully as possible back to their lives in their own communities with the appropriate support services in place. The child should be reintegrated back into school, social activities, sports, and chores or jobs as soon as medically possible. It is also important to monitor the child as they grow to ensure that they're keeping up with peers over time.

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Spinal Cord Laceration

► Spinal Cord Injury

Spinal Cord Transection

► Spinal Cord Injury

Spinal Cord Trauma

► Spinal Cord Injury

Spinal Injuries

► Spinal Cord Injury

Split Brain

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Synonyms

Hemispheric differences; Laterality

Definition

“Split Brain” is a term used to describe an early method of severing the corpus callosum and separating the two hemispheres of the brain. This was done to reduce the spread of seizures. Following this procedure differences were found between the left and right side of the brain; most of this research is attributed to Sperry [1].

Description

Split brain is a relatively rare situation which is usually the result of all other options being exhausted in attempting to

control epilepsy and epileptic seizures. It involves the severing of a dense group of nerve fibers which connect the left and right hemispheres of the brain. Agenesis of the corpus callosum is often congenital and is secondary to a malformation that following surgical severing seems to provide clearer left-right differences. The result of having a split brain is typically the inability to name an object that is presented within the left visual field due to the information from the left visual field being only sent to the right side of the brain where speech is typically not localized.

There is some debate within the research over the idea of competing hemispheres or “two minds” which result from a split brain. Some patients have been seen after surgery to appear as though they have separate goals. For example, the left hand may reach for one object of clothing while the right reaches for a completely different article of clothing. Typically, these issues resolve themselves within a short period of time after surgery and patients report having a cohesive consciousness afterwards. Conclusions about the functioning of normal brains based upon those with epilepsy have been difficult to substantiate.

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Spoken Language

► Verbal Skills

SSQ

► Barkley School Situations Questionnaire

Stability

- Reliability

Stage 5 Sleep

- Rapid Eye Movement Sleep

Stage Sequence of Ego Epigenesis

- Erikson's Stages of the Life Cycle

Stages 5 and 6 of Moral Judgment Development

- Postconventional Morality

Stages of Identity Development

- Erikson's Stages of the Life Cycle

Stages of Psychosocial Development

- Erikson's Stages of the Life Cycle

Stammer

- Stuttering

Standard

- Norms

Standard Celeration Charting

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Synonyms

Celeration; Educational aims; Fluency; Frequency; Precision learning; Precision teaching; SCC; Timings

Definition

The Standard Celeration Chart (initially called the Standard Behavior Chart) is used to observe and improve human learning and interaction. The chart shows the frequency of performance and its celeration, i.e., growth of learning across time. Frequency, whose formula is $F = \text{Count/Time}$, tells what happened during a specific time. Celeration, whose formula is $C = \text{Count/Time/Time}$, or Frequency/Time , tells what happens across the longer period of time – weeks, months, years, or decades. All Standard Celeration Charts retain and present the original data in the form of frequency and celeration. The most common use is in special and regular education where the 1-min timing has resulted in research-developed frequency and celeration aims for academic behaviors. Data-based frequency aims are also emerging for inner behaviors.

Description

Pavlov used frequency, a standard unit in the measurement of scientific phenomena, to measure physiological responses in dogs. Skinner used frequency, free operant behavior, and the cumulative recorder to measure the behavior of rats and pigeons. Lindsley, with his background in engineering and experimental psychology, brought to psychology and education the most powerful and scientific use of measurement applied to human behavior. He became the first person to measure human behavior continuously. In 1953, he took lessons learned in Skinner's operant laboratories into his home and continuously recorded the toy-playing behavior of his infant daughter, Cathy. He also began to measure the behavior of schizophrenics at Metropolitan State Hospital in Waltham, Massachusetts, and coined and first published the term "Behavior Therapy," in the 1954 Boston telephone directory: *Studies in Behavior Therapy*. In 1965, he developed the standard behavior chart, now described as a family of Standard Celeration Charts – standard measurement charts for human behavior in daily, weekly, monthly, and yearly time periods. By 2000, the vast

majority of the million-plus charts came from education. The chart is not a teaching method; rather it is a system for monitoring the effectiveness of any method of teaching, learning, or changing human behavior.

Since 1967, educators and others have used the standard celeration chart to observe and improve human behavior. The people behaving have ranged from fetuses to students to those in their 80s.

Frequency and Celeration

Because of the design of standard celeration charts – the standard is the 34 degree angle of the doubling line from corner to opposite corner – all *accelerations* and *decelerations* are *standard* no matter which chart. Using this graphic makes two critical elements apparent. First, behavior grows by *multiplying*, not by adding. Second, the chart makes one look at not only the *frequency* of a person's performance, but also at the *growth of learning across time*, i.e., the *celeration*. Frequency is performance: It tells what happened during one time period, but by itself it tells little about learning. The formula is $F = C/T$, or frequency equals count divided by time, e.g., a count of 77 behaviors in 1 min has a frequency of 77; a count of 192 in 10 min has a frequency of 19.2. To see whether performance accelerates or decelerates, we need to measure it across time. Since 1971, we have called this change in learning celeration, a word derived from the root word of acceleration and deceleration. Its formula is $C = C/T/\text{time}$, e.g., the growth of frequency *across* a week on a daily chart, or across a month on a weekly chart. Both frequency and celeration are standard measures of human behavior.

Different from most graphs, the standard celeration chart retains and presents the original data. Because of the SCC's design, the charter plots only frequency so the chart always displays performance within the time period.

Standard Celeration Charts

The *Daily Standard Celeration Chart* measures any human behavior that occurs on a daily basis. It goes from 0.00069, or one time per 24-h day, up to 1,000 per min. It has one behavior per day at the bottom, one behavior per minute in the middle, and 1,000 behaviors per minute at the top. Any line drawn parallel to the corner to corner line means learning has changed by $\times 2$, an acceleration or improvement. From the top left to the bottom right the change is a $\div 2$, a deceleration, an improvement when errors, inappropriate behaviors, or negative inners are counted. Each Daily Chart has 140 days across it.

Three categories of daily behavior often monitored include: (1) academic learning – e.g., see say (read) words, see write quadratic equations, see say (memorize)

musical notation or the Periodic Table, think say American government facts, see say parts of a microscope or skeleton; (2) other outer behaviors such as interrupts, greets people, sets goals, makes choices; or all-day charts of fetal movement; and (3) inner behaviors such as has thoughts of a former wife, feels jealous, pleasant and unpleasant feelings about oneself.

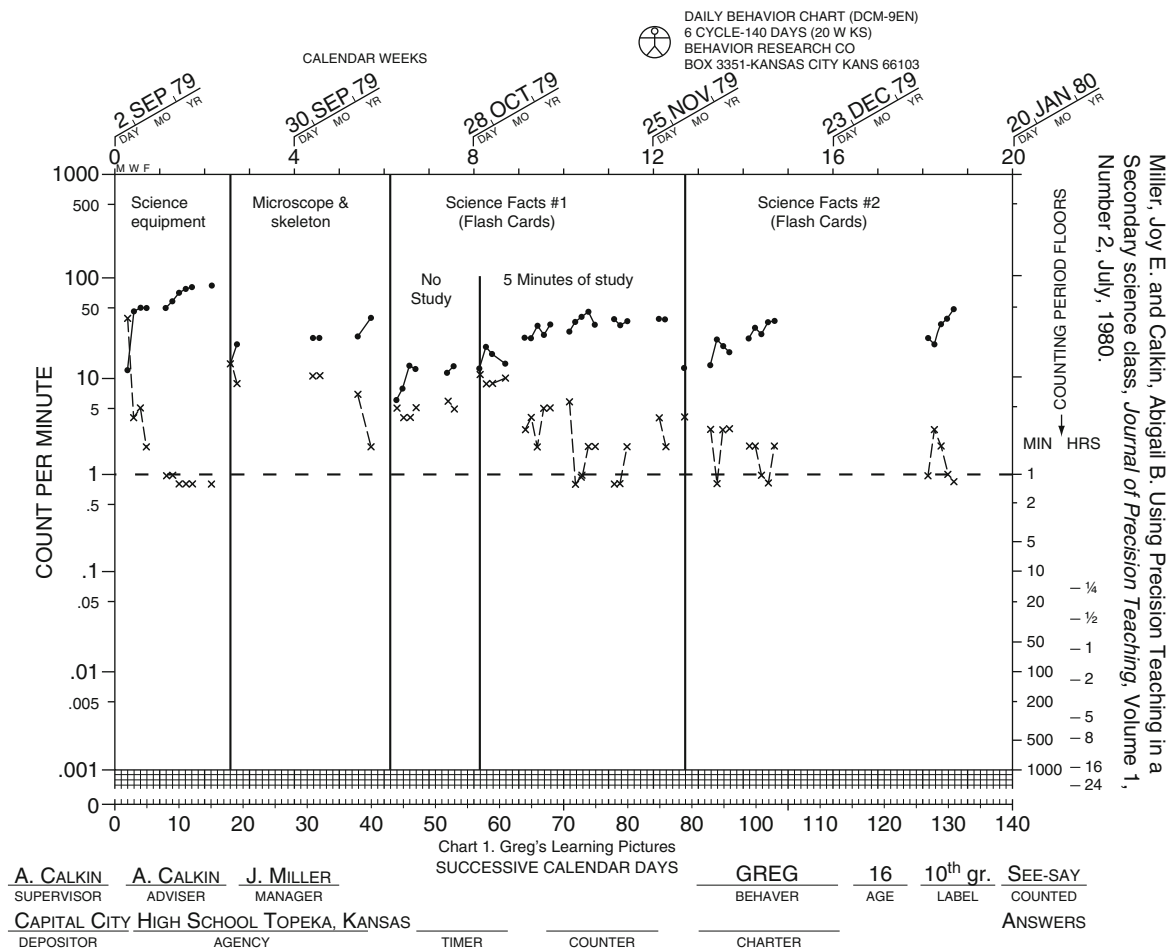
The daily chart in Fig. 1 shows Greg learning science facts by see say – he *sees* the object and *says* its name or he *sees* the front of the flashcard and *says* the information on the back.

In four of the five phases, the corrects go up (by $\times 1.8$, or an 80%, increase per week) and the errors go down, most dramatically in the first phase by a $\div 10$ per week. In the third phase, Science Facts #1 (Flash Cards) No Study, the corrects and errors both increased. Seeing from the collection of charts that learning was not occurring well for about fifteen of her 19 students, the teacher made the decision to add 5 min of study time. The students' correct responses continued to accelerate and their errors stopped increasing and began to decelerate. Given that the chart is standard, the teacher could quickly see if each student learned and could tell whether she had made the correct teacher decision. Such is the analysis of learning behavior that the standard celeration chart offers.

Because the chart uses a standard scale to display change numerically, when looked at, each of these charts shows immediately whether the line went up, down, or stayed the same. The steepness of the line occurs not because of a differently graphed scale on the left or across the bottom but because the behavior changed.

The Uses of Standard Celeration Charting

In 1967, Lindsley formed the Behavior Bank to collect, analyze, summarize, and display facts about human behavior [1]. Banked projects include academic, personal management, and inner behaviors. *Handbook of Precise Behavior Facts* contains summaries of 11,947 standard celeration chart projects on people's learning. The banked information contains each pinpoint, the body part involved, the supervisors and contributors of the projects, the instructional technique, and the reward or punishment for each project as well as visual displays of the data summary for any pinpoint which had at least five charts banked; the highest, middle, and lowest frequency; and the most rapid (steepest), middle and the slowest (flattest) celeration. By 1973, the Behavior Bank contained 16,376 projects. Considering these data were sufficient to draw precise and inductively discovered conclusions about human behavior, Lindsley stated there were eight Laws of Human Behavior. The bank closed in 1974.



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Standard Celeration Charting. Fig. 1. Daily behavior chart.

The 1-min timing is commonly used to implement change in precision teaching and in precision inner behavior. The first use of this important behavior change technique began in Ann Starlin's classroom in Eugene, Oregon in April 1968 to assist her students in their learning of geometric figure names; it is now widely used when helping students improve such academic areas as reading, math, social studies, and science skills, as well as improve the inner behaviors of pleasant thoughts and feelings. As early as 1970, Clay Starlin and Haughton had developed frequency aims for academic behaviors. Since then and as a result of hundreds of thousands more charts, academic and inner behavior frequency aims have been revised upwards and celeration aims also established.

In addition to helping students learn in regular and special education classrooms, learning centers, and universities, standard celeration charts have been used in many different fields – nursing, social work, psychology, inner behavior, business, analyses of historical and

governmental events, administration, and geriatrics to name some. As well as in the United States, the standard celeration chart, also known as precision teaching for its dominant use in education, is also used in the Republic of Ireland, the United Kingdom, Norway, Australia, South Africa, and Canada.

Relevance to Childhood Development

Standard celeration charting is used in the measurement and monitoring of the behaviors of fetuses, infants, preschoolers, and kindergarteners.

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Suggested Resources

Articles on precision teaching, and the use of the standard celeration chart with reading, inner behavior, children with autism, college students, and brain trauma rehabilitation. Available: <http://www.ejoba.org>

Standard Scores

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Synonyms

Derived score; Deviation IQ; GRE/SAT Score; Normal Curve Equivalent (NCE); Normal Score; Norm-referenced scores; Sigma Score; Stanines; Sten Score; T Scores; Z Score

Definition

A score that is derived from an individual's raw score within a distribution of scores. The standard score describes the difference of the raw score from a sample mean, expressed in standard deviations. Standard scores preserve the absolute differences between scores. The standard score (Z) is computed with the following formula:

$$Z = X - M/SD$$

where X = the raw score, M = the mean, and SD = the standard deviation.

Description

The use of standard scores allows the set of raw scores to be “normalized” or statistically adjusted to fit the normal distribution or “bell shaped curve,” allowing a more precise and meaningful comparison of scores across individuals in a sample. Standard scores in conjunction with standard deviations above and below the mean are often used to illustrate individual strengths and weaknesses on a measure, showing where an individual falls on the normal distribution [1]. They may also be used with some measures as a criterion score for classification purposes or as a descriptor of traits or symptoms on assessment measures.

Commonly used Standard Scores

Z score: Mean of 0, standard deviation of 1. Simplest and most common standard score, used to convert raw scores to other types of standard scores. For example, to convert a Z score to a T score (below), the following formula is used:

$$T = z(SD) + M$$

where SD is the standard deviation of the new standard score and M is the mean of the new standard score, in this case SD = 10 and M = 50.

T Score: Mean of 50, standard deviation of 10. Commonly used to express scores from psychological tests and behavior rating scales such as the MMPI-2 and the BASC-2.

Deviation IQ: Mean of 100, standard deviation of 15. Sometimes called the “Wechsler score,” commonly used to report scores from most intelligence tests.

Stanine: Mean of 5, standard deviation of 2. Short for “standard nines,” a range of scores from 1 to 9 that allows a gross classification of below average-average-above average scores across the normal distribution.

Sten: Mean of 5.5, standard deviation of 2. Short for “standardized ten,” a range of scores from 1 to 10. Used in reporting of scores from the 16PF personality questionnaire, for example.

Normal Curve Equivalent (NCE): Mean of 50, standard deviation of 21.06. Based on percentile rank, the NCE creates equal interval percentile scores from 1 to 100.

SAT/GRE Score: Mean of 500, standard deviation of 100 [2].

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Standardized Testing

► Norm-Referenced Testing

Stanford Binet

► Stanford-Binet Intelligence Scales

Stanford-Binet Intelligence Scales

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Synonyms

Stanford Binet; SB5; Stanford-Binet intelligence scales, Fifth Edition

Definition

The Stanford-Binet Intelligence Scales is an individually administered measure of cognitive abilities. It was first developed in France in 1905 as the Binet–Simon scale, but adapted for use in the United States at Stanford University in 1916 where it obtained its current name. The instrument has undergone several revisions over the past century, and the Stanford Binet Intelligence Scales – Fifth Edition (SB5) is the most recent revision, which was published in 2003. Like previous editions, the SB5 is one of the most widely used psychometric instruments, and is often included in clinical, neuropsychological, and psychoeducational evaluations. The SB5 can be administered to individuals as young as 2 and over 85 years of age. The SB5 has

a hierarchical structure in which overall intellectual ability (the Full Scale IQ score) is comprised of two Domains (Verbal and Nonverbal IQ) and five Factor Indexes (Fluid Reasoning, Knowledge, Quantitative Reasoning, Visual Spatial Reasoning, and Working Memory).

Description

The Binet–Simon Scale was developed over a century ago by Alfred Binet and Theodore Simon [1]. First published in 1905 and revised in 1908 and 1911, the Binet–Simon Scale was part of an effort to differentiate the intellectual abilities of Parisian school children and to classify levels of mental retardation.

Lewis Terman and his colleagues at Stanford University translated the Binet–Simon Scale into English, adapted it for use in the United States, and published the Stanford-Binet Intelligence Scale in 1916 [2]. Based on an age-scale format, the test performance of this standardization group was analyzed to determine which items were passed by the majority of test takers of a particular age. From these administrations, tables of “mental age scores” were derived, which allowed the performance of subsequent test takers to be compared with the standardization group. The 1916 edition was noteworthy for the use of the intelligence quotient, which represented the ratio of mental age to chronological age. A mental age score that was higher than the examinee’s actual “chronological age” denoted above average performance; conversely, performance below the chronological age denoted below average performance. However, the distribution of scores was not constant across different ages; thus, scores by individuals at different ages were not directly comparable [3].

Revisions of the Stanford-Binet in 1937 and 1960 represented efforts to improve the standardization of the instrument and improve the representativeness of the sample on which the test was normed. The 1937 edition expanded the standardization group, created alternate versions of the test (Forms L and M) to facilitate re-administration, and included more nonverbal items at younger ages. The 1972 revision combined the best items from the two versions of the 1937 edition and was dubbed the Stanford Binet Intelligence Scales, Form L-M. The standardization sample for this revision was the first to include African Americans and Latin Americans, as well as European Americans. Form L-M replaced the age-scale format that was introduced in the 1916 edition with a point-scale format, in which performance is based on scores that are converted into standard scores. Unlike ratio/mental age-based intelligence quotients, the mean and standard deviation of standard scores remain constant; thus, scores at different ages are comparable. These

early editions provided only one score, a measure of overall ability, and have been criticized for overemphasizing verbal abilities and rote memory while giving little consideration to other types of abilities that are hypothesized to underlie general intellectual ability (e.g., nonverbal abilities, visual perception, and spatial skills) [3].

The Stanford Binet Intelligence Scale, Fourth Edition (SB:IV), which was published in 1986 [4], was based on a four-factor hierarchical model. At the first level was a general intellectual factor ("g"), which was reported as the Test Composite Score. The four cognitive factors were Verbal Reasoning abilities, Abstract/Visual Reasoning abilities, Quantitative Reasoning, and Short Term Memory, which were reported as Standard Age Scores. The SB:IV was standardized on a group of over 5000 individuals (much larger than previous editions) that were similar to 1980 U.S. Census data in regard to gender, race, ethnicity, geographic region, community size, and socioeconomic status.

The SB5 was revised over a period of 7 years and published in 2003 [5]. The SB5 was normed on a sample of 4,800 subjects stratified to match variables from 2001 U.S. Census data vis-à-vis age, sex, ethnicity, geographic region, and education level. Data were also reported regarding community size and type of school attended. In addition, subjects from special groups were included in the sample: individuals with documented Learning Disabilities, Attention Deficit Hyperactivity Disorder, Mental Retardation, speech impairment, and hearing impairment.

The standardization sample of the SB5 was segmented into groups ranging from 2 years to above 80 (a segment that included individuals as old as 96 years). The inclusion of these age groups drastically increased the age groups to which the SB5 can be administered. The SB5 can be administered to individuals as young as 2 and over 85 years of age, whereas the 4th ed. was appropriate only for ages 2–23 years. A strength of the SB5 is that an individual's cognitive development could be monitored continuously via the same scale over a long period of years due to the wide age span of the test. However, due to a phenomenon known as the Flynn Effect [6, 7], which describes the trend for intellectual abilities in the general population to increase over time, it is necessary for tests to be revised periodically. Consequently, it is unlikely that any one individual would be monitored for more than approximately a 20-year span of time with the same version of any test. In addition to increasing the age range from previous editions, the SB5 increased the range of possible IQ scores. The SB5 is also theoretically linked to the Woodcock-Johnson III Tests of Achievement to facilitate the diagnosis of learning disabilities.

The SB5 Technical Manual [8] indicates that the test developers took extensive measures to assure that the instrument is culturally fair. Test items underwent "logical analysis" and were eliminated or altered if considered offensive or likely represent a construct differentially across demographic groups. Items also underwent empirical analysis of differential item functioning, item response theory, and construct-related studies of item fairness; items with poor demographic fairness were eliminated.

The SB5 has a hierarchical structure. At the first level is an overall measure of cognitive ability, the Full Scale IQ. At the second level are two domains (Verbal and Nonverbal) and five Factors (Fluid Reasoning, Knowledge, Quantitative Reasoning, Visual-Spatial Reasoning, and Working Memory). A third level consists of ten subtests, each simultaneously representing a domain and a factor (e.g., Verbal Fluid Reasoning). A fourth level consists of five or six testlets per subtest. Testlets are defined as sets of three to six items clustered into functional levels or levels of difficulty. The fifth level of the hierarchy consists of individual testlet items [9].

The ten subtests yield the Full Scale IQ score. Five of the subtests comprise the Verbal Domain and yield the Verbal IQ score, and five of the subtests comprise the Nonverbal Domain, yielding the Nonverbal IQ score. The Verbal subtests are presented with oral or printed directions and responses are largely verbal. In contrast, Nonverbal tasks have lower language demands, although they are not entirely nonverbal. They are presented with pictures, manipulatives, and brief oral directions, and responses involve gestures, manipulation and brief oral responses. Each Verbal subtest corresponds with a Nonverbal subtest and these pairs of Verbal and Nonverbal subtests comprise the five Factor Indexes. In addition, the SB5 provides an optional Abbreviated IQ score, which is based on scores from two subtests: Nonverbal Fluid Reasoning and Verbal Knowledge.

The SB5 is partially based on the Cattell–Horn–Carroll (CHC) theory of intelligence [10]. Briefly, CHC theory describes intelligence as composed of ten broad abilities: crystallized intelligence, fluid intelligence, quantitative knowledge, reading and writing, short-term memory, visual processing, auditory processing, long-term storage and retrieval, processing speed, decision speed/reaction time. The SB5 measures five of the factors described by CHC theory but prominently includes Verbal and Nonverbal Domains even though this dichotomy is not a part of the theory. It has been noted that it is not clear when test interpretations should be based on the two domains or the five factors [11].

In contrast with earlier editions of the Stanford Binet, IQ and Factor Index scores on the SB5 are reported as standard scores that have a mean of 100 and standard deviation of 15, which is a metric that is consistent with most other widely used ability tests. Subtest scores of the SB5 are reported as scaled scores, which have a mean of 10 and standard deviation of 3.

The SB5 utilizes a routing procedure in which the examinee's performance on a routing subtest determines starting level for other subtests within the same domain (i.e., Nonverbal or Verbal). The purpose of the routing procedure is to reduce testing time and examinee fatigue. The estimated time to administer all ten subtests is 45–75 min; however, shorter versions are sometimes appropriate. The SB5 generates an Abbreviated IQ score based on the examinee's scores on the two routing subtests. This abbreviated assessment is estimated to take 15–20 min. The Examiner's Manual also indicates that the examiner may choose to administer only the five subtests within a given domain in order to obtain a Nonverbal IQ score or a Verbal IQ score. For example, the Examiner's Manual specifies that the Nonverbal IQ score may be the most appropriate metric for examinees with communication disorders, hearing impairment, autism, or limited English language backgrounds. Conversely, the Verbal IQ score might be the most appropriate measure for examinees with orthopedic impairments or motor skills deficits [9].

Statistical reliability of the SB5 has been measured via multiple methods. Reliability of a test score refers to consistency across sets of items, time, and other conditions. The technical manual presents reliability coefficients for IQ scores and Factor Index scores, all of which were .90 or above (out of a maximum possible value of 1.0), which indicates a very high level of reliability. Test–retest reliability was assessed by retesting a group of subjects after a number of days (between 1 and 39 days). Stability coefficients were 0.89 and above for the IQ scores, and 0.81 and above for the Factor Indexes. Interscorer agreement refers to the correlation of item scores for the same examinee when rated by independent examiners. The median coefficient of interrater reliability was 0.90 [8].

Validity refers to the extent to which an instrument measures the trait that it purports to measure. Convergent validity measures the correlation between different instruments designed to measure the same traits. Studies of convergent validity indicated that the SB5 is highly correlated (median correlation $r = 0.83$) with the two editions of the Stanford Binet that preceded it, as well as the Wechsler Preschool and Primary Scale of Intelligence – Revised, the Wechsler Intelligence Scale for Children – 3rd ed., the Wechsler Adult Intelligence Scale – 3rd ed.,

the Wechsler Individual Achievement Test – end ed., and the Woodcock Johnson III Tests of Achievement [8].

Relevance to Childhood Development

According to the Technical Manual, “the SB5 was designed to measure developmental growth and life-span change” [8], (p. 103). The SB5 is appropriate for assessing the cognitive abilities of children at a variety of ages and developmental levels. Because it has been normed on children as young as 24 months, it is particularly useful for the early identification of developmental issues and other special needs. Indeed, the norming process for the SB5 included the following clinical and exceptional groups: intellectual giftedness, mental retardation, developmental delay, autism, learning disabilities, Attention Deficit Hyperactivity Disorder, severe emotional disturbances, speech/language disorders, and orthopedic or motor delays. The Technical Manual presents tables of scores for each group in an attempt to discern common profiles that, along with other corroborating sources of information, might aid in the identification of individuals with special needs. It was noted, for example, that children diagnosed with Attention Deficit Hyperactivity Disorder obtained significantly lower scores on the Working Memory Factor Index than other factor index scores.

Beyond simply identifying special needs, the test authors have provided recommendations for linking cognitive test results to strategies for teachers and parents for improving areas of weakness. These guidelines are clustered into five areas corresponding with the five Factor Indexes, and lead to recommendations for students who score one standard deviation below national norms on a factor index, or display a significant weakness within their own profile [12].

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Stanford-Binet Intelligence Scales, Fifth Edition

- [Stanford-Binet Intelligence Scales](#)

Stanines

- [Norm-Referenced Scores](#)
- [Standard Scores](#)

Startle Reflex

- [Moro Reflex](#)

Startle Response

- [Moro Reflex](#)

Starving

- [Anorexia Nervosa](#)

Status Scores

- [Norm-Referenced Scores](#)

Sten Score

- [Standard Scores](#)

Stepfamilies

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Synonyms

[Blended families](#); [Remarried families](#); [Stepparent households](#)

Definition

Families of two adults in a formal or informal marriage where at least one of the adults has children from a previous relationship.

Description

Stepfamilies are described as families with at least one child living with a biological parent who has remarried or cohabits with a new partner. The other biological parent lives outside of the household and the child may or may not have contact with that parent through full or partial custody. The stepparent is one who has a

relationship, whether marital or not, with the child's biological parent and resides with the child on a full or part time basis. The stepfamily can also consist of stepsiblings, in which the stepparent has children from a previous relationship who reside within the stepfamily on a part time or full time basis. There may also be children created within the stepfamily between the stepparent and biological parent; which is considered a blended family.

Relevance to Childhood Development

Due to the increase of stepfamilies, it is important for stepchildren and stepparents to build positive and healthy relationships; however, if the relationship between the biological parent and stepparent is not intact, stepchildren may be reluctant to begin the process. Studies have suggested that the relationship between couples must be a priority to maintain the health of the family. After a child experiences a divorce with biological parents, the idea that another marriage may not be successful can create a sense of insecurity. Children who are entering a new stepfamily structure can develop feelings of separation.

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Stepparent Households

► Stepfamilies

Stereotype Threat

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Definition

Stereotype threat refers to being at risk of confirming as a personal characteristic an existing stereotype about

a social category (gender, racial, or ethnic group, etc.) to which one belongs. Concern about possible confirmation of the stereotype commonly leads to performance decrements in domains related to that stereotype.

Description

Much of the early research on stereotype threat explored the idea that African-American students' intellectual performance might be undermined by stereotype threat, specifically by their concern that their performance might validate existing negative stereotypes about African Americans' intellectual abilities. For example, in the classic study that launched work on this topic, Steele and Aronson [4] demonstrated experimentally that African-American students who believed they were taking a test measuring their verbal reasoning ability performed less well than African-American students taking the same test who were led to believe that the test measured something else not related to racial stereotypes. However, stereotype threat appears to negatively impact the performance of individuals in many social categories when they believe their behavior might fulfill negative stereotypes about the social categories to which they belong. So, for example, Latinos in the U.S., who are also often stereotyped as less academically able than Whites, experience stereotype threat effects similar to those evidenced by African Americans. In addition, women, who are often stereotyped as poor in math compared to men, demonstrate stereotype threat effects when taking tests they believe measure their ability in math. Parallel negative effects have also been found on the performance of elderly individuals doing tasks they believe measure their memory and on the performance of low SES individuals undertaking activities they believe measure their verbal ability. Importantly, individuals belonging to groups that are not negatively stereotyped in specific domains do not generally show performance decrements related to whether or not the activity is described as measuring their abilities in those domains, supporting the contention that concern about the possibility that one's behavior will confirm a stereotype is the cause of the documented performance decrements. So, for example, men do not show performance decrements when an activity is said to test their math ability compared to when it is not. However, men have been shown to do more poorly on an emotion-processing task after being told that men are less good than women at such tasks than when they did not receive such potentially threatening information.

Stereotype threat not only appears to depress test scores in the short term. It can also lead to numerous other negative outcomes likely to undermine performance in the stereotype-relevant domain in the long run, including

the avoidance of challenging work in that domain, the rejection of critical feedback, and long-term lack of interest and engagement in the stereotype-relevant domain [1, 2].

Although the issue of how stereotype threat undermines performance is far from settled, research suggests a number of possibilities. Specifically, stereotype threat may create anxiety, which undermines performance. It can also lower individuals' expectations about their likely future performance and interfere with memory by leading individuals to devote some of their mental resources to processing and suppressing thoughts about being negatively stereotyped.

Numerous factors appear to influence whether stereotype threat is experienced [5]. For example, the likelihood of stereotype threat effects increases with increased task difficulty, increased levels of concern about performance in the domain in question, and increased identification with the stereotyped group. Also, individuals who themselves tend to believe stereotypes about their social category and those who expect to encounter prejudice and are more bothered by it than others are more affected by stereotype threat than are others, although personal belief in the validity of a stereotype is not necessary for stereotype threat effects to occur. There is some evidence that other personality predispositions, such as a high internal locus of control and a low tendency to self-monitor, are also related to increased stereotype threat effects.

Relatively little is dependably known about strategies that reduce or eliminate stereotype threat effects. However, some research suggests that individuals who are induced to believe that the stereotyped capability is malleable rather than being genetically determined are less prone to stereotype threat effects than are others. Also, educating individuals about the existence of stereotype threat and its potential to cause anxiety may be helpful. Importantly, both laboratory and school-based research suggests that leading individuals vulnerable to stereotype threat to self-affirm, i.e., to write about their most valued personal characteristic or about their values, can reduce stereotype threat effects, sometimes to a substantial extent [3]. Other strategies to reduce stereotype threat effects currently being proposed and investigated include emphasizing high standards and one's belief in the individual's potential, activating category memberships that are not linked to negative stereotypes, describing activities in non-threatening ways, and finding ways to make negatively stereotyped social categories less salient than they might otherwise be.

Relevance to Childhood Development

To the extent that negative stereotypes exist about the capabilities of children belonging to different social

categories, stereotype threat can undermine children's development by reducing their performance and decreasing their interest in negatively stereotyped domains. Concern about this possibility is given weight by the fact that many children become aware of group stereotypes at a quite young age, certainly during if not before their school years. Furthermore, studies document stereotype threat effects in children as well as in older individuals. Stereotype threat can reasonably be considered one factor contributing to the substantial achievement gap between minority group students and their non-minority group peers, although it is clearly not the only one.

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Stereotypic Behavior

► Autistic Behaviors

Stereotypic Play

► Restrictive Play

Stereotypy

► Autistic Behaviors

Stillbirths

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Synonyms

Fetal death; Intrauterine fetal death; Sudden Antenatal Death Syndrome (SADS)

Definition

A stillbirth is the death of a fetus prior to delivery or during its travel through the birth canal that occurs at 20 or more completed weeks of gestation. If gestational age is unknown, then the death of a fetus weighing 350 or more grams is considered a stillbirth [4].

Description

Stillbirths can be classified into three categories: early preterm, late preterm, and term. Early preterm is typically used for a fetal death occurring between 20 and 27 completed weeks of gestation. Late preterm refers to a fetal death occurring during 28–36 weeks of gestation. Term refers to a fetal at 37 weeks or more [4]. Miscarriage and stillbirth are not synonymous. A miscarriage is the death of the fetus before 20 weeks of gestation, whereas a stillbirth occurs at 20 or more weeks of gestation.

Male fetuses are more likely to be stillborn than female fetuses [6]. In the United States, approximately 26,000 stillbirths occurred in 2002 [5]. The stillbirth rate declined 52% between 1970 (14 per 1,000 births) and 1998 (6.7 per 1000 births) [1]. Although the cause of 25–60% of all fetal deaths cannot be determined, some causes of stillbirth have been identified, and include infection, lethal fetal anomalies, and fetal malnutrition [3]. Infection can lead to stillbirth through different mechanisms, such as placental damage, severe maternal illness, and development of a congenital anomaly in the fetus. The number of stillbirths caused by infection in developed countries, like the United States, ranges from 10 to 25%, but in developing countries, infection is a major contributing factor in stillbirths [4]. Another cause of stillbirth is the fetus being small for its gestational age or not growing at an appropriate rate. Abruption, in which the placenta prematurely separates from the uterine wall, has also been identified as a cause of stillbirth. Intrapartum asphyxia, impaired respiratory gas exchanged during labor, is another cause of stillbirth. The incidence of intrapartum asphyxia has decreased by 95% since the introduction of intrapartum monitoring [2, 3].

Researchers have identified several risk factors for stillbirth. Some of these risk factors are maternal obesity, low educational attainment, smoking, diabetes, hypertension, infection, thrombophilia, systemic lupus erythematosus (SLE), and multiple gestations. Infertility is a risk factor due to the use of advanced reproductive technologies, including in vitro fertilization (IVF) and ovarian stimulation [3]. The age of the mother is also a risk factor for stillbirth. Females who are under 20 or over 35 years old are more likely to have a stillbirth [1]. Another risk factor is race. Socioeconomic factors associated with race in relation to stillbirth include inadequate prenatal care as well as obstetric care early in the pregnancy [3]. However, African-American women are twice as likely to experience a stillbirth as their Caucasian counterparts even when evaluating only women who received adequate prenatal care [7]. There is also an interaction between race and maternal age. When over 35 years of age, an African American woman's risk of having a stillbirth is four to five times higher than the national average [5].

Stillbirth continues to be an important public health concern. Developing cost-effective prevention strategies is difficult due to limited information. Accurate reporting of stillbirths, including a proper investigation of the cause, can contribute to the development of both prevention and medical management strategies.

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Stilnoct

►Ambien (Zolpidem)

Stilnox

►Ambien (Zolpidem)

Stimulant Medications

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Synonyms

Adderall; ADHD medication; Amphetamine salts; Concerta; Dexadrine; Dexamphetamine; Methylphenidate; Ritalin

Definition

Stimulant medications are psychoactive drugs that act on the central nervous system by inhibiting the reuptake of specific neurotransmitters including dopamine and norepinephrine, and consequently may elicit alertness, arousal, and in some cases euphoric feelings. Moreover, these medications may help attenuate symptoms of mild depression and narcolepsy, but are largely used to treat symptoms of Attention Deficit/Hyperactivity Disorder (ADHD). Popular stimulants in clinical use are largely prepared from methylphenidate, dextromethylphenidate, dextroamphetamine, or mixed amphetamine salts [3].

Description

Historical Context and the Modern Use of Stimulant Medications

The history of stimulant medication developed from the ancient use of stimulants, for largely recreational uses, by many cultures in different parts of the world. Stimulant use has been documented in multiple cultures across different continents. For instance, for the past 800 years people in East Africa and Lower Arabian Peninsula have chewed a stimulant leaf called Khat. Also, the early use of tea in ancient Chinese culture, the early tobacco use by Native Americans and how such stimulants are widely popular today around the world illustrates the pervasiveness of these stimulants. Additionally, the modern day proliferation of associated stimulants include Coca leaves and white powder Cocaine that began to be used in the early parts of the twentieth century for recreational as well as medicinal purposes [1].

Such historical recreational uses lead to the first synthesized stimulant, namely amphetamine in 1920. Amphetamine was produced for its effect as a mood-elevating drug and about the same time cocaine was medically prescribed for its stimulating effects [4]. The clinical use of stimulants for behavioral disturbances in children and adolescents first began in 1937 at the Emma Pendleton Bradley Home for Children in Rhode Island when Charles Bradley serendipitously discovered the positive effects of amphetamine on children's hyperactivity [6].

Another important development was the approval of methylphenidate for treatment of lethargy, mild depression, and narcolepsy by the Food and Drug Administration (FDA) in 1955. In the 1960s, methylphenidate acquired the trade name *Ritalin*, thus setting precedence of the popularity of stimulant medications [4].

In 1962, Bernard Weiss and Victor Laties extensively studied the effects of amphetamine (including methamphetamine). Before their detailed study there was "love/hate" affair with stimulant medications. The findings of Weiss and Laties portrayed amphetamines as "wonder drugs" that could greatly improve human cognitive abilities, as well as physical performance, but skepticism and worry about possible side effects still endured [4].

In the 1970s, there was increase in uproar about the possible negative consequences of giving Ritalin and other methylphenidate-based drugs to children. By the 1980s, with a new mental illness named to describe inattention in a small number of children as attention deficit disorder (ADD), the relationship between ADD and Ritalin and related drugs seemed clear cut and appropriate [4].

What suspicion there was in the 1970s was dissipated in the eighties and use and prescription among young children rose dramatically up until the late 1990s. Between 1987 and 1996, the use of stimulants among those younger than 18 increased up to sevenfold [10].

During the 1990s, the number of children and adults diagnosed with ADD rose from about 900,000 to almost 5 million. This figure was arrived at by the amount of medication prescribed for ADD. The sharp rise in ADD diagnosis is directly tied to another statistic: a 700% increase in the amount of Ritalin produced in the United States during the same time period. Furthermore, 77–87% of stimulant prescription from 1991–1997 was methylphenidate but a substantial increase of 7–14 fold in amphetamine prescription between 1996–1999 as observed by Medicaid and in health maintenance organizations [10, 11].

Although stimulant medications were used for several mental illnesses, today's use is largely for ADHD.

There is a plethora of stimulant medication options available. Ritalin was the icon of this class of medication, but today there are many more popular brands that are more flexible than previous stimulant medication amalgamations.

Commonly used stimulant medications for ADHD

Brand name	Generic name	Frequency	Duration of action
<i>Dexedrine</i>	D-Amphetamine	2 or 3 times per day	5 h
<i>Adderall</i>	Mixed amphetamine	2 or 3 times per day	5 h
<i>Dexedrine Spansules</i>	Dextroamphetamine	Once in a.m.	6–9 h
<i>Adderall XR (extended release)</i>	Extended release mixed amphetamine	Once in a.m.	9 h
<i>Ritalin</i>	Methylphenidate	3 times per day	2–4 h
<i>Focalin</i>	Dexmethylphenidate	2 times per day	2–5 h
<i>Ritalin SR (slow release)</i>	Slow release amphetamine	1 or 2 times per day	5 h
<i>Metadate CD</i>	Methylphenidate	Once in a.m.	8 h
<i>Concerta</i>	Methylphenidate	Once in a.m.	12 h

Benefits and Side effects of Stimulant Medications

In general, many studies show a significant improvement in ADHD core symptoms such as impulsiveness, aggressiveness and hyperactivity, with the use of stimulant medication. Placebo responses in children with ADHD are generally low ranging from 2–39% [3]. Furthermore, stimulant medications have been found to improve the quality of social interactions between children with ADHD and their parents, teachers, and peers [3].

The majority of psychiatrists and other mental health professionals recommend the use of stimulant medication intervention only after a great deal of consideration has been given to possible side effects and identifying

comorbid issues such as learning disabilities or depression. Moreover, stimulant medications should only play a part in overall psychoeducational treatment plans that may include classroom accommodations, working memory training, parent education, and coaching [3].

Although there is generally a low rate of serious side effects, possible side effects include appetite suppression, sleep disruption, irritability, disruption in liver function, elevated heart pressure, elevated heart rate, moodiness, sad demeanor, abdominal pain, lethargy, weight loss, and headaches.

Relevance to Childhood Development

As has been discussed thus far, stimulant medications are largely used to treat ADHD symptoms. It also has been noted that stimulant medications have a controversial history, and currently there is debate about the administration of these drugs to children. Between 3 and 7% of school aged children are diagnosed as ADHD, and 77% of the initial referrals in schools for ADHD examination come from teachers who may play a significant role in the assessment. Other controversial issues center on whether ADHD is over- or under-diagnosed, and whether there is over- or under-prescription of stimulant medications.

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Stimulants

Synonyms

Analeptics; Psychostimulants; Uppers

Definition

A class of psychoactive drugs that increases mood, feelings of well-being, alertness, and energy

Description

Stimulants are typically prescribed for treatment of attention-deficit/hyperactivity disorder (ADHD), narcolepsy, and short-term obesity. Stimulants have many short-term and long-term effects. The short-term effects are caused by an increase in the amount of norepinephrine and dopamine in the brain by inhibiting reuptake, which increases blood pressure, heart rate, blood glucose, breathing, and constricts blood vessels. The effects can be increased alertness, energy, attention, and euphoria. There are also harmful effects such as cardiovascular problems or seizures. Also, there are harmful long-term effects of continued stimulant use, such as addiction. Stimulant drugs are often abused and when taken in high dosages stimulants can cause paranoia, hostility, high body temperature, and an irregular heartbeat.

Types of Stimulants:

- Caffeine
- Nicotine
- Amphetamines
- Cocaine
- MDMA (Ecstasy)
- Norepinephrine reuptake inhibitor (NRIs) and Norepinephrine-dopamine reuptake inhibitors (NDRIs)
- Modafinil
- Ampakines
- Yohimbine

Relevance to Childhood Development

Stimulants may stunt children's growth. Also, abuse of prescribed stimulant medication has become increasingly

common among adolescents and college students. Individuals who are prescribed stimulant medication for ADHD are selling their medication for recreational use. The medication is also being used to increase studying efficiency.

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Stimulus

► Motivation

Stimulus Control

► Antecedent Management of Behavior
► Discrimination Learning

Stimulus Discrimination

► Discrimination Learning

Stimulus Preference Assessment

► Preference Assessments

Stockings of Cambridge

► Tower Tasks

Stories

► Personal Narratives

Storm and Stress Theory

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Definition

Describes the period of adolescence as a time of difficulty and strife [2].

Description

G. Stanley Hall, father of the Child Study Movement, in his text titled *Adolescence* [4] discussed the “Storm and Stress theory” of adolescence. He defined this time as one characterized by behavioral difficulties and emotional storminess [4]. Albert Bandura challenged this claim of storm and stress with his 1964 study on the adolescent experience [1]. His research indicated that the majority of youth did not experience adolescence as a turbulent time [1]. Those who did indicate a stressful adolescent experience also indicated a stressful childhood experience, suggesting that the period of adolescence did not bring about the turbulence [1]. Contemporary research also challenges Hall’s theory indicating that fewer than 10% of adolescents report experiencing extreme turmoil [3].

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Stoutness

► Obesity

Strange Situation

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Synonyms

Ainsworth’s procedure; Ambivalent attachment

Definition

The Strange situation is a standardized observational procedure involving short separations and reunions between an infant and his caregiver. Each successive phase of the procedure is designed to be increasingly stressful to the infant to induce attachment behaviors. The infant’s behavior at departures and reunions are coded to assess the toddler’s attachment style.

Description

The Strange situation was developed by Mary Ainsworth and her colleagues to assess the attachment between a mother and her infant. The procedure provides empirical support for attachment theory that she and her colleague John Bowlby developed (See Chapter Attachment Theory herein.). The structure of the observational technique is based upon Bowlby’s concept of the protective function of attachments. When an infant is distressed, he turns to his attachment figure for comfort and to ensure his wellbeing. In addition, the structured technique is premised on Ainsworth’s notion that infants use their mothers as a *secure base* from which they play and explore their environment. The physical arrangement of the laboratory facility is designed to resemble the sort of situations that a mother and her child encounter in their home, but with added stress so as to activate attachment behaviors.

Ainsworth and her colleagues developed a highly specified protocol for the Strange Situation. The procedure involves a sequence of eight episodes in which 12–18 month old infants are observed as they experience stress induced by separations from their mothers. The infant’s responses to his mother at reunion is observed and used to classify the child into one of four attachment styles.

More specifically, in the first brief episode, the mother and infant are lead into the room by a stranger who asks the adult to sit quietly and place her child on the floor near some toys. In the next episode, the stranger leaves the room while the mother quietly reads a book. The mother has been told not to initiate any engagement with the child, but can respond appropriately if the infant initiates contact. Each successive episode is increasingly stressful to

the infant as he is separated from his primary attachment figure and is made anxious by the presence of a stranger.

Episode	Persons present	Duration	Action
1	Mother, infant, observer	30 s	Observer introduces mother and infant to room and gives instructions. Observer leaves.
2	Mother and infant	3 min	Mother sits in chair and reads while baby explores. Mother responds to infant but does not initiate.
3	Stranger, mother and infant	3 min	Stranger enters, silent (1 min.), talks to mother (1 min.), and approaches infant (1 min.).
4	Stranger and infant	3 min or less	First separation. Mother leaves room. Stranger comforts infant if needed, otherwise sits in chair.
5	Mother and infant	3 min or more	Stranger leaves. First reunion. Mother returns, greets and/or comforts infant, sits in chair and reads.
6	Infant alone	3 min or less	Second separation. Mother departs, leaving infant alone.
7	Stranger and infant	3 min or less	Continued separation from mother. Stranger enters, comforts infant if needed, otherwise sits in chair
8	Mother and infant	3 min	Second reunion. Mother returns. Stranger leaves.

The procedure is video recorded and scored by highly trained observers. These observers tabulate four 7-point scales that assess *proximity seeking*, *contact maintaining*, *avoidance of proximity and contact*, and *resistance to contact and comforting*. Although all of the infant's behaviors are closely noted, the observers pay special attention to the nature of the infant's reunion with his mother following separations.

Ainsworth and her colleagues grouped infants whose behaviors were alike in as many respects as possible. This analysis yielded three main groups of infants, designated as secure, avoidant and ambivalent, and subtypes of each of

these styles. Subsequently, other researchers identified a fourth general pattern. Ainsworth hypothesized that differences in attachment were related to variations in the sensitivity and appropriateness of the mother's responses to her infant. The names assigned to the different styles refer to the infant's perception of his mother's response to him if he is in need of comfort or protection, and the manner in which he uses his caregiver to meet those needs.

Ainsworth identified a *secure* baby as one who protested when his mother left the room, greeted her pleasantly upon her return, and was able to resume play. When situated in the room with the mother close by, the infant would use her as a secure base from which he would explore the toys and other objects in the room. In contrast, an infant with an *avoidant attachment style* rarely cried when the mother departed from the laboratory room, and remained aloof on her return. He generally did not show his need for connection, although physiological studies showed that he has a physically measurable stress reaction. Thus, he does not express his attachment need to avoid risking rejection. Finally, an *ambivalent (or resistant)* infant is anxious before the mother leaves the room, and may become highly upset when she departs. When the mother returns, the infant engages with her in an ambivalent fashion: he seeks contact while resisting her by squirming away or kicking his mother. He has difficulty using his mother to obtain comfort and subsequently return to exploration. Later research revealed the *disorganized* attachment pattern. An infant who reflects this attachment style displays inconsistent or contradictory behaviors. For instance, the infant may happily approach the mother but turn away or shriek when she tries to pick him up. At other times the infant may evince extreme distress yet remain frozen and not seek contact with his mother. Those who displayed a disorganized attachment were found to have been abused or subjected to distressing experiences early on.

Relevance to Childhood Development

The strange situation is a powerful research tool that has been used in thousands of empirical studies to explore the influence of infant-caregiver attachment on child development. Longitudinal studies on attachment have shown its importance in personality growth and adjustment.

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Stranger Anxiety

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Synonyms

Fear of strangers; Stranger fear; Stranger wariness

Definition

An infant's anxiety response to someone other than the caregiver.

Description

Stranger anxiety is discomfort at the approach of an unfamiliar person. Infants differ considerably in both the way in which they demonstrate signs of discomfort and in the intensity of distress they experience once confronted with people that are unfamiliar. The manner in which an infant responds to a stranger has been found to be influenced by a variety of factors, namely, the infant's temperament and the security of the mother–infant relationship, aspects of the stranger such as gender and behavior toward the infant, and aspects of the situation, including the proximity and availability of an attachment figure or the infant's current mood [1–3]. Thus, infants may cry, cling and hide their faces, or merely become unresponsive and guarded [1].

Because researchers diverge in their views regarding behaviors that constitute evidence of stranger anxiety, the relevant literature does not denote a precise time period in which the phenomenon occurs. The majority of researchers agree, however, that by the time they are one year old most infants respond with some level of stranger anxiety [1, 4, 5].

The behavioral reactions characteristic of stranger anxiety have been viewed by attachment theorists as indicators of the infant's developing ability to discriminate between the attachment figure and other adults [6]. According to this explanation, labeled “the incongruity hypothesis” by Hebb in 1966 [2, 3], fear may result from discrepancies between the stranger's demeanor and that of the familiar caregiver. Because the emergence of the

unexpected is incongruous and incompatible with infants' expectations, it produces anxiety and fear which is then manifested in avoidant behaviors. The emergence of stranger anxiety is thus viewed as a milestone of cognitive development: a behavioral demonstration of the infant's acquisition of the ability to represent persons mentally and to make a distinction among various persons in its environment, an important skill achieved in Piaget's fourth stage of sensorimotor development.

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Stranger Fear

► Stranger Anxiety

Stranger Wariness

► Stranger Anxiety

Strangulation

► Asphyxia

Strategic Thinking

► Self-Evaluation in Academic Settings

Strategist

► Family Therapist

Strattera (Atomoxetine)

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Synonyms

Atomoxetine

Definition

Strattera is a selective norepinephrine reuptake inhibitor (SNRI) commonly prescribed for treatment of Attention Deficit/Hyperactivity Disorder (ADHD).

Description

Strattera is manufactured by Eli Lilly and Company. It is administered as a capsule, which is taken whole. The medication is intended to reduce inattentiveness, motor hyperactivity, and impulsivity. Although effects may be observed as early as the first dose, signs of improvement may take 6–8 weeks to appear. Furthermore, improvement in symptoms may be more pronounced in female patients, as well as with patients who exhibit more severe symptoms prior to treatment or who exhibit predominantly inattentive type rather than hyperactive-impulsive type. Possible side effects for children and adolescents include digestive difficulties (i.e., upset stomach, reduce appetite, nausea), dizziness, drowsiness or fatigue, and mood swings. Digestive difficulties and drowsiness are reported most frequently. Adverse side effects are seen more commonly in young patients and patients who exhibit a high level of hyperactivity or impulsivity prior to treatment, while diagnosis of predominantly inattentive type has been linked with reduced frequency of reports of adverse side effects [2–4].

Strattera should not be taken by individuals who are sensitive to atomoxetine, who are taking a monoamine oxidase inhibitor (MAOI), or who have narrow angle glaucoma. Use in conjunction with Albuterol may increase heart rate and blood pressure. Due to the potential for increases in heart rate and blood pressure, caution is recommended in use of Strattera for patients with heart problems. Individuals with liver impairment may require

a reduced dosage, typically being prescribed a 50% dosage for moderate liver damage and a 25% dosage for severe liver damage [3, 4].

Although Strattera has been approved by the Food and Drug Administration for treatment of ADHD, it may also be prescribed for treatment of depression. As with many antidepressants, Strattera carries a warning that use with children and adolescents may increase the risk of suicidal ideation. Patients should be monitored closely, particularly early in initial treatment with Strattera [3]. A meta-analysis conducted by Bangs et al. [1] noted suicide-related events were more common among patients given atomoxetine than individuals given a placebo, although the events occurred rarely. Suicide-related events usually involved increases in suicidal ideation, rather than attempted suicides.

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Streaming (Great Britain)

► Ability Grouping

Street Smarts

► Practical Intelligence

Street Terms: Gas, Gear, Juice, Roids

► Anabolic Steroids

Stress

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Synonyms

Anxiety; Coping; Pressure; Tension

Definition

A condition in which an individual feels mental tension due to overwhelming circumstances – this mental tension can develop into depression once the individual feels hopeless or can be manifest as physical problems.

Description

The stress response occurs when the amount of stress exceeds what is typically tolerable, and tolerance levels tend to vary for each individual. No matter how the arousal is elicited (whether it be from a traumatic event, an exhilarating event, or anything in between) the stress response process remains the same. The autonomic nervous system is responsible for any stress-related processes, and is able to release hormones through two different neurological pathways. Both pathways are utilized, however they serve different functions and are activated by different hormones.

The Fast-Acting Pathway is activated when the hormone epinephrine is released, thereby preparing the body for the “fight or flight” response. During this process, epinephrine has two primary functions: preparing the body for an abrupt surge of activity and stimulating cell metabolism allowing the body to be ready for action. This survival mechanism only occurs when the mind perceives a critical or dangerous situation.

The Slow-Acting Pathway involves the hormone cortisol, a steroid released from the adrenal cortex. Cortisol results in the shutting down of any systems in the body that are not essential at the time of the stressful event. This allows the remaining energy in the body to be redirected in order to deal with the stressful event.

It is suggested that consistent exposure to or concentrated amounts of these stress hormones during prolonged stress and intense traumatic events may cause hippocampal damage. Such damage may increase one’s vulnerability to stress-related disorders (Post-Traumatic Stress Disorder, Panic Disorders, Generalized Anxiety Disorder, and Acute Stress Disorder).

Relevance to Childhood Development

Although stress involves a significant biological component, it has an equally profound impact psychologically. Psychological beliefs are formed through the process of conditioning, whether it is through previous personal experiences or by observing the experiences of others. Thus, the events that happen during the developmental stages of children can have large implications on their lives as adults. Regardless of whether or not an event is negative or positive, it will ultimately influence an individual’s beliefs, emotions, and reactions to all similar events in the future.

Developmentally, all children will experience stress. Large amounts of stress not only pose the risk of damage to the hippocampus, but the risk of abnormal social development as well. Depending upon the frequency and intensity of the stressor, the previously acquired coping skills, and the level of social support established, a range of outcomes can be possible for a child. The more positive coping skills a child possesses and the larger their social support system, the better they will be able to effectively manage the stressful situation. Children with fewer coping skills and/or smaller social support systems could be at greater risk for Post-Traumatic Stress Disorder, Panic Disorders, Generalized Anxiety Disorder, and Acute Stress Disorder. Theoretically, personality disorders could also be attributed to maladaptive coping strategies that may have been developed in response to growing up in stressful environments (examples would be the notoriously criminalistic behavior of Antisocial Personality Disorder or the manipulative behavior of Borderline Personality Disorder).

Ideally, levels of stress for children should be kept to a minimum as a more nourishing environment has been shown to correlate with better social skills and better overall mental health. The mental wellbeing and social skills of children are important throughout the developmental stages, however the benefits also extend to adulthood in regards to future career opportunities and personal relationships.

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Stress Management

► Self-Care

Stress Reduction

► Self-Care

Stress-Diathesis Model

► Diathesis-Stress Model

Stressful Life Events

► Life Events

Stress-Vulnerability Model

► Diathesis-Stress Model

Striatum

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Synonyms

Neostriatum or striate nucleus

Definition

The striatum is a collection of subcortical anatomical brain structures named after their striped or striated appearance.

Description

The striatum includes the caudate and putamen, two of the three nuclei that make up the basal ganglia (the caudate, putamen, and globus pallidus). The striatum collects projected input from the sensory cortex and other cortical regions. These three nuclei work together to send their output to the motor areas of the cortex, through the globus pallidus and then the thalamus. The striatum is considered a motor region that has a role in planning and the initiation of voluntary movements, and it controls the proper timing, ordering and movement sequences.

The striatum's activity is disrupted in Parkinson's disease, which has symptoms such as resting tremors, a slow shuffling gait, and difficulty initiating voluntary movement. Huntington's disease also affects the caudate nucleus, and is characterized by puppetlike jerking and grimacing choreic movements.

With the help of neuroimaging techniques, other changes in the structures and chemistry of the striatum have been noticed in adults who used methamphetamines, specifically an enlargement of the striatum, while the effects of in utero exposure to methamphetamines have shown a decrease in the striatal structures.

Other studies have shown association between abnormalities in circuits involving the amygdala and striatum and bipolar disorder, as well as effects on mood regulation. Furthermore, other studies are investigating the links between the striatum and attention-deficit hyperactivity disorder.

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Stroke

► Cerebral Infarction

Stroop Tasks

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Synonyms

Color word task

Definition

The Stroop Test is designed to measure an individual’s ability to inhibit automatic verbal responses.

Description

The Stroop Test refers to the phenomenon that if you try to name the color of the ink in which a word is written, the word itself can “interfere” with the process. The Stroop effect was first described by J.R. Stroop in 1935 [4] and is most obvious when the word, and color of the ink that the word is written in, don’t match (i.e., they are incongruent). For example, the correct response for the three words below would be red, brown, and blue.

- Blue
- Green
- Brown

However, in this situation it usually takes longer to name the color of the ink because of the need to inhibit the more automatic response of reading the word. On the other hand if the word does match its color (i.e., is congruent), it usually takes a shorter time to respond.

Administration

In the Stroop Test individuals are required to respond to three separate conditions. In the first condition, the participant is presented with a page that has rows of colored patches that they are required to name. In the second condition they are presented with rows of words that they are required to read. The third condition is the traditional “stroop effect” where the participant is presented with a page of words printed in incongruent ink colors. Participants are asked to name the color of the ink that the letters are printed in rather than reading the word. For example, the correct response for the first line of the text in the box below would be, red, brown, blue, and green [3].

Blue	Green	Brown	Red
Green	Brown	Red	Blue
Brown	ed	Blue	Green
Red	Blue	Green	Brown

Some test designers add a fourth condition. In the fourth condition participants are presented with a page with rows of words again printed in incongruent ink colors but in this condition some of the words are in boxes. The participant is required to name the color of the ink for the words that are not in boxes and read the word if the word is inside a box.

Scoring

In each condition individuals are required to name the colors or read the words as quickly as possible. A number of scores can be generated: (a) time taken to complete a condition, (b) number of uncorrected errors, (c) number of corrected errors. Normative data are available for most age groups [3].

Relevance to Childhood Development

The Stroop Test has become a well used measure of inhibitory control. Inhibitory control is an important aspect of development. As a general rule, children have a less developed ability to inhibit automatic responses. For example, a very young child may verbalize an inappropriate response (e.g., “look mommy that lady is fat”) whereas a normal adult would be able to inhibit verbalizing “inappropriate” observations because of their more developed inhibitory control skills. For most children inhibitory control develops automatically as they mature. However, for some children this ability does not develop at the normal rate such as for children with Attention Deficit Hyperactivity Disorder [1]. In this situation the Stroop Test is a valuable tool in assessing the level of inhibitory control problems that these children are experiencing.

Because very young children are still developing their reading ability Stroop tasks have been developed that do not require this skill, such as color-object interference tasks where line drawings of well known objects (e.g., ducks, frogs) are used rather than words [2].

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Structural Equation Modeling

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Synonyms

Analysis of covariance structures; Confirmatory factory analysis; Covariance structure analysis; Covariance structure modeling; Path analysis

Definition

Structural equation modeling (SEM) is a flexible and powerful set of statistical techniques which incorporates path analysis and confirmatory factor analysis.

Description

SEM represents an advantage over traditional general linear modeling in that it has flexible assumptions, the ability to test a complete model rather than individual coefficients, the ability to have more than one outcome variable, ease of modeling mediation, and ease of handling missing data.

SEM techniques include confirmatory factory analysis (CFA) and path analysis [1]. CFA is a process by which researchers use observed variables to measure unobserved, latent constructs. Factor loadings are calculated as a measure of the strength of the relationship between an observed variable and its latent factor. Path analysis in SEM tests relationships between observed variables or latent constructs in the form of paths or correlations. Path coefficients are calculated as a measure of the strength of association between a predictor and outcome variable. Models that contain both latent (unobserved) constructs and observed variables embedded in a path model require researchers to first test a measurement model using CFA, followed by testing a structural model using path analysis. However, SEM is an extremely flexible approach to statistical modeling, and although estimation of measurement and structural models are one frequent application of SEM, it is often used in other ways. For example, CFA may be used alone to validate the psychometric properties of a measure. Structural or path models may be used alone in cases when research does not involve latent constructs. SEM may also be applied to longitudinal data through

use of latent growth curve modeling and analysis of time series data.

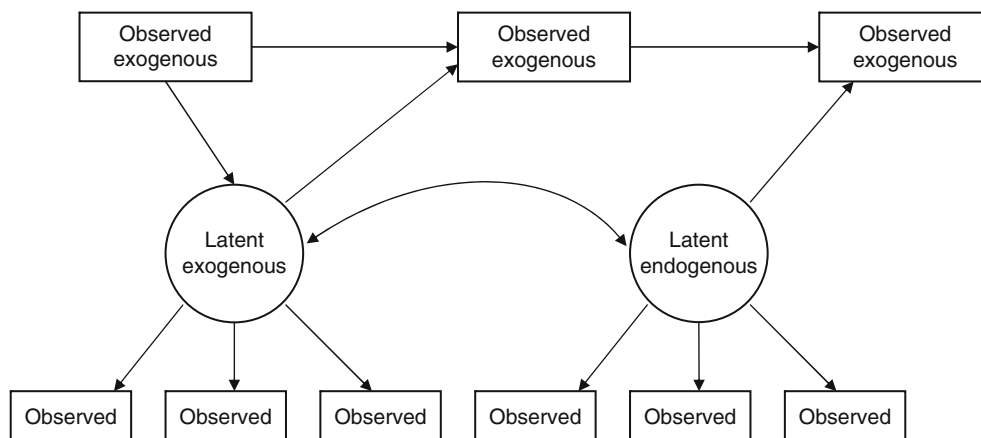
In general, models using SEM are not evaluated using significance levels, as with traditional GLM statistics. They are evaluated through assessment of various fit indices that are generated by the software program used to test the model. The software program may also calculate modification indices, which identify changes to the model meant to improve fit. However, modification indices are typically used sparingly, as SEM is a theory-driven statistical approach. LISREL, AMOS, Mplus, and EQS are popular software packages for SEM.

Interpretation of Path Diagrams in SEM (see Fig. 1)

An observed variable, represented graphically with a box, is one that has been directly measured by researchers. A latent variable, represented graphically by an oval, is one that is not directly measured, but is estimated by the model from observed variables. An exogenous variable is one that is not predicted by another variable in the model, but typically is a predictor of one or more other variables. An endogenous variable is one that is predicted by other variables in the model and may or may not also predict other variables. Each straight line with a single arrow represents a path, or hypothesized direct effect of one variable on another. Each curved line with two arrowheads represents a correlation between two variables.

Relevance to Childhood Development

SEM is a statistical application that is being used throughout research fields, including areas of child development and psychopathology. Recent applications include investigation of child social adjustment, impact of parental



Structural Equation Modeling. Fig. 1 Example path diagram used in structural equation modeling.

alcohol use on child outcomes, the relationship of parenting techniques to childhood aggression, development of parent–child relationships during adolescence, evaluation of family-based intervention for school success, and numerous others. Given the flexibility and utility of SEM, it will likely continue to increase in frequency as a statistical tool among child development researchers.

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Structural Imaging

► Brain Imaging

Structuralist

► Family Therapist

Structured English Immersion

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Definition

An instructional approach designed for students with limited English proficiency to develop proficiency in English and benefit from academic content instruction in English.

Description

Structured English immersion has as its goal sufficient English language acquisition for students to succeed in mainstream English-only classrooms. Instruction in these programs is in English and teachers use strategies such as visuals, graphic organizers, and gestures to help make the English content comprehensible [1]. Longitudinal research has demonstrated that students in Structured English immersion programs have similar academic skill and English language growth rates in the first few years of elementary school as compared to students in early-exit and late-exit ► [transitional bilingual education](#) programs; however students in late-exit transitional bilingual education

programs tend to have accelerated academic skill and English language growth throughout the second half of elementary school as compared to students in Structured English immersion or early-exit bilingual education programs [2].

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Struggle with Self Identity

► Identity Crisis

Student Teams Achievement Divisions (STAD)

► Cooperative Learning

Student-Centered Instruction Holistic Learning

► Whole Language Approach

Study Skills

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Synonyms

[Study strategies](#); [Study tactics](#)

Definition

Study Skills comprise an integrated repertoire of tactics and strategies, which facilitates acquisition, organization, retention, and application of new information.

Description

Study skills encompass a broad range of tactics and strategies that ultimately allow students to effectively learn, organize, and recall new information. Although children are often expected to develop study skills naturally, research indicates that many students exhibit study skill deficits and require explicit instruction to acquire and appropriately use study skills [5]. Additionally, the degree to which students are able to study effectively is a strong predictor of academic achievement [1].

An important distinction must be drawn between study tactics and study strategies, both of which are often used interchangeably with study skills. Study tactics, or the specific techniques involved in studying, form the building blocks for effective study skill development. Study tactics generally fall into one of three “clusters,” each of which is characterized by its approach to learning new information [2]. *Repetition-based* tactics emphasize frequent rehearsal of material to encourage learning. Use of flashcards or spelling lists are common examples of repetition-based tactics, which are well-suited for the acquisition of rote facts or lists that require minimal information processing. *Procedural* tactics focus on developing steps or routines that enhance information processing. Note-taking, outlining, and SQ3R are some of the most common examples of procedural tactics, which are often beneficial for students in middle- to late-elementary school. Procedural skills allow children to practice a reliable method of acquiring and reviewing new information. Finally, *cognitive* tactics are often introduced during late elementary or middle school. Cognitive approaches, such as graphic organizers, question generation, and summarization, facilitate critical thinking and personal connections to new material.

In contrast to study tactics, study strategies refer to skills that are necessary to effectively select, integrate, and apply one or more study tactics in a way that facilitates learning. The development of study strategies typically occurs during middle school or later and is a key factor in meeting the increasing demands of secondary education. Study strategies are commonly referred to as **metacognitive skills**, and can include behaviors such as assessing the demands of a task, selecting and applying appropriate tactics, self-monitoring for comprehension and recall of information, and effectively managing the environment to facilitate learning. Students who struggle academically in high school almost always exhibit deficits with regard to effective study strategies [6].

Study skills, then, refers to an age-appropriate combination of both study tactics and study strategies. An appropriate balance between tactics and strategies varies

depending upon the developmental level of the child. During early elementary school, for example, study skills may be considered appropriate if children can independently apply one or two study tactics. By late elementary and early middle school, students are typically expected to demonstrate competent use of multiple study tactics, in addition to a developing ability to select and apply a tactic appropriate for a particular task (i.e., apply a study strategy). Students in high school who demonstrate adequate study skills exhibit an extensive toolbox of study tactics, in addition to strategies that allow them to manage multiple courses and assignments, determine and use one or more tactics appropriate for each studying task, and self-monitor their study habits to ensure adequate comprehension and retention of material.

Relevance to Childhood Development

Study skills have a major impact on children’s academic development. Children who struggle academically across a number of subject areas often exhibit significant study skills deficits. In young children, academic difficulty that results from inadequate study skills may be manifested through inattention, challenging behaviors, or low task completion across classroom settings. In middle and high schools, students with study skills deficits often have difficulty with low homework completion, poor test performance, and inappropriate organization and time management skills. Several resources are available for comprehensive assessment and intervention for children who demonstrate such deficits [3, 4].

It may also prove beneficial for parents and teachers to recognize two keys points regarding study skills. First, study skills develop along a continuum, from very basic rehearsal tactics to a complex array of techniques and strategies that are applied flexibly and intentionally to tasks. Helping children become competent at using age-appropriate tactics and strategies can contribute to long-range academic success. Second, study skills can be explicitly taught within an educational context. Incorporating study skills instruction into regular classroom activities allows students to receive modeling, feedback, and guided practice in the use of a variety of specific study tactics. This exposure and experience is likely to help students feel more independent in selecting and using study tactics independently.

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Study Strategies

► Study Skills

Study Tactics

► Study Skills

Stuttering

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Synonyms

Falter; Stammer

Definition

To stutter is to speak with an involuntary disruption or blocking of speech (as by spasmodic repetition or prolongation of vocal sounds).

Description

Stuttering is a speech disorder in which the normal flow of speech is disrupted by frequent repetitions or prolongations of speech sounds, syllables or words, or by individual's inability to start a word. The speech disruptions may be accompanied by rapid eye-blinks, tremors of the lips and/or jaw, or other struggle behaviors of the face or upper

body. Certain situations, such as speaking before a group of people or talking on the telephone, tend to make stuttering more severe. Other speaking situations, such as singing or speaking alone, often improves fluency. Diagnosis is usually based on the history of the disorder, including when it was first noticed and under what circumstances, as well as a complete evaluation of speech and language abilities. Stuttering may also be referred to as Stammering, especially in England and by the broader term of “dysfluent speech”. Stuttering is different from two additional speech fluency disorders, *cluttering*, characterized by rapid, irregular speech and *spasmodic dysphonia*, a voice disorder. It is estimated that over three million Americans stutter. The precise mechanisms causing stuttering are not known.

Relevance to Childhood Development

Stuttering affects individuals of all ages but occurs most frequently in children who are developing language, typically between the ages of 2 and 6 years. Boys are three times more likely to stutter than girls. Most children, however, outgrow their stuttering, and it is estimated that less than 1% of adults stutter. Complications of stuttering in children may include social problems caused by fear of ridicule, which may make a child avoid speaking entirely.

The most common form of stuttering is thought to be developmental, that is, occurring in children who are in the process of developing speech and language. This relaxed type of stuttering is felt to occur when a child's speech and language abilities are unable to meet his or her verbal demands; that is, stuttering happens when the child searches for the correct word. Another form of stuttering is neurogenic, where the brain is unable to coordinate adequately the different components of the speech mechanisms. Neurogenic stuttering may also occur following a stroke or any other type of brain injury. Other forms of stuttering are classified as psychogenic, or originating in the mind or as a product of mental activity of the brain such as thought or reasoning. Psychogenic stuttering occasionally occurs in individuals who have some type of mental illness or have experienced severe mental stress or anguish.

There are a variety of treatments available for stuttering. Any of the methods may improve stuttering to some degree, but there is, at present, no absolute cure for stuttering. Developmental stuttering is often treated by educating parents about restructuring the child's speaking environment to reduce episodes of stuttering. Parents are urged to provide a relaxed home atmosphere with lots of opportunities to speak, and refrain from criticizing or reacting negatively to the child's dysfluencies.

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Subcortical Aphasia

- Childhood Aphasia

Subjective Assessment

- Social Validity

Substance Abuse

- Chemical Dependency

Substance Dependence

- Chemical Dependency

Substantia Nigra

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Definition

The substantia nigra is defined as a collection of neurons and nuclei that are part of the dopaminergic system, which are located in the midbrain or mesencephalon. The name of the structure is based on the dark color of the cells due to their high concentration of neuromelanin.

Description

The substantia nigra is involved in the function of basal ganglia through the dopaminergic nigro-striatal system, which connects the globus pallidus and the thalamus. This connection is believed to influence motor behavior.

There are two different parts of the substantia nigra, the *substantia nigra pars compacta* and the *substantia nigra pars reticulata*. *Substantia nigra pars compacta* is the upper, more dorsal part, in which the dopaminergic cells are distributed similar to a band stretching from the medial to the lateral area. *Substantia nigra pars reticulata* is located ventrally or below the *pars compacta*, and it consists of the dendrites of the dopaminergic neurons.

The degeneration of the substantia nigra and the deterioration of the dopaminergic pathways are the causes of Parkinson's disease, and the substantia nigra also is believed to play a role in learning.

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Suckling

- Breastfeeding

Sudden Antenatal Death Syndrome (SADS)

- Stillbirths

Suffix

- Morpheme

Suffocation

- Asphyxia

Suicidal Cognitions

► Suicide Ideation

Suicidal Thoughts

► Suicide Ideation

Suicide

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Synonyms

Self-annihilation; Self-destruction

Definition

Suicide refers to a fatal, self-inflicted act with the inferred or explicit intent to die.

Description

Suicide is the final and most serious form of suicidal behavior on a continuum that also includes suicide ideation and suicide attempts. Suicide continues to be a significant national problem; although it is the 11th leading cause of death among Americans overall, suicide is the third-leading cause of death among children and adolescents, trailing only accidents and homicide. The probability of suicide increases in both males and females as children grow older, with adolescents ages 15–19 being at higher risk than youth ages 10–14. Suicide does occur in children under the age of 10, although it is very rare.

In terms of race and ethnicity, in the U.S. Caucasian youth are at highest risk for suicide, followed by African American and Latino youth. Proportionally, however, the highest rates of youth suicide are among Native American youth. Possible reasons for this include a proportionally higher use of alcohol and firearms and a frequent lack of social integration in this group. Gender exerts a greater influence on youth suicide than does race and ethnicity. Although females report more suicide ideation than males

and attempt suicide two to three times the rate of males, males complete suicide at a rate of five times that of females. Reasons for the higher youth suicide rate of males include the higher rates of significant risk factors among males as well as their being less likely than females to engage in a number of protective behaviors, such as seeking help. In terms of geography, youth suicide rates have consistently been highest in the Western states and Alaska and lowest in the Northeastern states. It has been frequently suggested that geographical differences in youth suicide rates may largely be attributed to differences in population density across various regions. Consistent with this hypothesis is the finding that suicide rates are typically higher in rural areas than in urban areas.

The majority of youth suicides occur in the afternoon or evening, and most often in the home, where the primary means for suicide (e.g., firearms) are typically available. The use of firearms is the most frequently used method of suicide completion among males ages 10–19. Although historically firearms were the most frequently used method of suicide completion among females in this age group as well, more recently females have been more likely to use hanging/suffocation rather than firearms. Although a number of studies have examined temporal variations in suicide completion, none to date have been specific to youth suicide. Among adults, research indicates that suicides occur most often between March and September, with the fewest recorded suicides occurring in December. Suicides appear to occur most often on Mondays and least often on weekends.

Although numerous risk factors for youth suicide have been identified, the most reliable and robust risk factor is the presence of psychopathology, particularly depression and related mood disorders. In addition to psychopathology, the other prominent risk factor for suicide is previous suicidal behavior, particularly previous suicide attempts. As opposed to risk factors, which are variables that may predispose an individual to suicidal behavior, warning signs are more dynamic and proximal factors that suggest the increased probability of a suicidal crisis. Some prominent warning signs for suicide may include hopelessness, increasing alcohol or drug use, acting recklessly or engaging in risky activities, feeling trapped, experiencing anxiety and/or agitation, withdrawing from family and friends, being unable to sleep or sleeping excessively, giving away prized possessions, and/or perceiving no reason for living or no sense of purpose in life.

There are many myths associated with youth suicide, including the erroneous beliefs that it is caused primarily by family and social stress rather than mental health problems, that individuals who threaten suicide are only doing

so to gain attention, and that once an individual decides to commit suicide there is little or nothing that can be done to prevent it. Perhaps the most significant and dangerous myth, however, is that asking questions or talking about suicide with children and adolescents will increase the probability of youth suicidal behavior. There is no evidence to support this belief, and research suggests that at risk youth who are able to openly discuss suicide with a trusted adult can lead to beneficial outcomes for them as well as their peers who may also be at risk. The direct questioning of youth suspected of being at risk for suicide is also an essential component of effective suicide risk assessment and prevention.

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Suicide Contagion

► Copycat Suicides

Suicide Epidemic

► Copycat Suicides

Suicide Ideation

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Synonyms

Suicidal cognitions; Suicidal thoughts

Definition

Suicide ideation involves thoughts/cognitions about killing oneself as well as specific thoughts related to suicide.

Description

Suicide ideation may take a variety of forms, ranging from general thoughts about suicide, to wishes of being dead or never being born, to more serious thoughts of suicide involving specific plans to kill oneself, such as how, where, and when this might be accomplished. Suicide ideation is rare in children but highly prevalent among adolescents, with research suggesting that approximately 1 out of 6 high school students will seriously contemplate suicide in a given year. There are significant gender differences in regard to suicide ideation. Specifically, adolescent females report engaging in serious suicide ideation more often than males, although males have a much higher suicide completion rate.

Suicide ideation occurs at the beginning of the suicidal behavior continuum that also includes suicide attempts and suicide completion. The behaviors along this continuum vary and are not mutually exclusive, nor do all suicidal youth advance sequentially through them. Although suicide ideation typically is a necessary precursor to more serious forms of suicidal behavior (i.e., suicide attempts; completed suicide), most children and adolescents who engage in suicide ideation neither attempt nor complete suicide.

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Sumner, Francis Cecil

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Life Dates

1895–1954

Introduction

Francis C. Sumner was the first African American awarded the Ph.D. in psychology from a U.S. institution in 1920. Graduating from Clark University under the tutelage of G. Stanely Hall, Sumner's dissertation was titled: *Psychoanalysis of Freud and Adler*.

Educational Information

Sumner received his elementary education through several school systems in Virginia, New Jersey, and the District of Columbia. Due to a lack of secondary education opportunities he did not graduate from high school. Even without a high school diploma, he performed well enough to enroll at Lincoln University in Pennsylvania during the 1911 school year at age 15. In 1915 he graduated magna cum laude with special honors in English, Modern Languages, Greek, Latin, and Philosophy. The prominent child psychologist G. Stanley Hall was the president of Clark University and he allowed Sumner to be admitted in 1915. In 1916 he was awarded a second B.A. in English from Clark University in Worcester Massachusetts. Upon completion of his Ph.D. in 1920 Sumner accepted a position as chair of the philosophy and psychology departments at West Virginia Collegiate Institute now known as West Virginia State University.

Accomplishments

Dr. Sumner established the first psychology department at Howard University in Washington D.C. He believed that in order to develop a strong program to train Black psychologists, psychology departments needed to be autonomous units. With the help of then Howard University's president, Mordecai Johnson, a separate department of psychology was permanently established and he was appointed full professor and head of the department in 1930.

Contributions

Because of his diligence while confronting the social and educational barriers of his time, Dr. Sumner is known as the pioneer for African American psychologists. Under Sumner's tutelage many of his students went on to become prominent psychologists. One such student was Kenneth Bancroft Clark whose psychological research on prejudice, discrimination and segregation in the developing child was used in the 1954 Supreme Court case *Brown v. Board of Education*. In addition, Sumner was an official abstractor for both the *Journal of Social Psychology* and the *Psychological Bulletin*, where he translated more than three thousand articles from German, French, and Spanish.

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Superego

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Synonyms

Über-Ich (German)

Definition

According to Freud's structural model of the mind, as expressed in *The Ego and the Id* (1923), the superego is the part of the mind that is comprised of internalized moral standards and ideals learned both from parents and society—our sense of right and wrong. Freud believed the superego was the last component of the mind to develop, and begins to emerge at latency when the child “identifies” with the same-sex parent, thereby resolving the Oedipal Complex.

Description and Relevance to Childhood Development

The germination for the idea of the superego first appeared in Freud's writings, via his concept of the “ego-ideal” as elaborated in *On Narcissism: An Introduction* [2]. In this original conception of the ego ideal, the child projects an ideal image of himself or herself but is forced to abandon this image due to parental criticism. While this paper does not name the superego specifically, it does discuss a mechanism whereby the ego is watched and measured against the ego ideal. Seven years later, Freud [3] discusses how the ego-ideal can be shaped by others whom the person admires, while not necessarily specifying the role parental and authority figures play in superego development.

Building on his earlier ideas, Freud operationally defined the superego in *The Ego and the Id* (1923). The superego is composed of two parts: the *conscience* and the *ego ideal*. In a general sense, the conscience is a punitive, negative agent, and the ego ideal functions as an agent of reward.

The *conscience* is made up of prohibitions, and includes information about things that are viewed as bad by parents and society. These behaviors are often forbidden and lead to bad consequences, punishments, or feelings of guilt and remorse. Just as the parent has punished the child for his/her transgressions, so does the conscience punish the person with guilt, “accidentally” cutting one's finger, or intentionally self-destructive behavior [10].

Hall [6], among others, points out that an overdeveloped conscience can lead to the superego to adapt prohibitions even more severe than parental or societal prohibitions, leading to a “straight-jacket existence” (p. 46) or the development of thought patterns based on morals and ideals rather than reality.

The *ego ideal* includes the rules and standards for good behaviors. These behaviors include those approved of by parental and other authority figures. Obeying these rules leads to feelings of pride, value, and accomplishment. Just as the child has been rewarded for certain behavior by her parents (or parental figures), the child is rewarded by the ego ideal with increased self-esteem and pride. Freud [4] thought that the ego ideal was tied into childhood narcissism, which in adulthood can transform into the perfection of the ego ideal.

The superego acts in opposition to the id and the ego, and does not discriminate between what is real and what is imagined. It rewards, punishes, and makes demands, and its goal is to eliminate the pleasure principle and the reality principle. The superego does not only keep watch over behavior, it oversees cognition, namely those of the ego, as thinking is just as bad as doing. Freud, in his later writings, described the superego as representing the “cultural past” [5, p. 206] and felt that the superego helped maintain social order by restraining sexual and aggressive behavior that, if unrestrained, could de-stabilize society.

Other psychoanalytic theorists have examined Freud’s conception and definition of superego. Klein [8] (Melanie Klein (1882–1960)), though agreeing with Freud’s conception of the superego, disagreed with its formation at latency. She instead proposed that the superego is formed early in life by the first object-introject, namely the mother’s breast. Similarly, she also disagreed with Freud’s idea that boys developed a stronger superego than girls because they have a penis and girls do not. She posited that girls are better adjusted psychosocially than boys, because boys have to separate from their mother, while girls are extensions of their mother and thus do not need to separate. Erikson [1] acknowledges the need for superego development for socially acceptable behavior, but views its development as a loss because it often blunts imagination and initiative. Lacan [9] proposes that superego “has nothing to do with moral conscience as far as its most obligatory demands are concerned” (p. 310). He felt that superego is not the ethical agency of the mind, but in fact, is the anti-ethical agency. He felt that the betrayal of desire is what leads to guilt, and that the ego ideal compels us to give up on our desires and live according to the demands of the social order.

Psychoanalytic theorists, most prominently the object-relations psychologist Otto Kernberg, have traced character pathology to issues with superego development. In his book, *Object Relations Theory and Clinical Psychoanalysis* [7], he theorized that since older children and most adults show some form of ego and superego conflicts, most people show some degree of “splitting” of their psyches that stems from infancy. Kernberg and many others have argued that when the developmental history of splitting is examined, it is found to begin shortly after birth and eventually develops into adult forms of “ego” versus “superego.” An excessive form of splitting is traced to Borderline Personality Disorder, while Narcissistic Personality Disorder and Anti-Social Personality Disorder have etiology in deterioration and/or destruction of the superego.

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Supportive Care

► Palliative Care

Suppression

► Inhibition

Survival of the Fittest

► Darwin's Theory of Natural Selection

Susceptibility to Interference

► Distractibility

Sustained Attention

► Attention Span

Swallowing Reflex

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Synonyms

Involuntary swallow; Pharyngeal response mechanism; Pharyngeal swallow response; Swallowing response

Definition

Automatic physiological mechanism that results in breath hold secondary to vocal fold adduction, laryngeal and hyoid anterior and superior movement, velopharyngeal closure, and epiglottal posterior movement to cover the trachea during bolus movement through the hypopharynx and the upper esophageal sphincter.

Description

The swallowing reflex is one phase of the swallow which is under reflexive or involuntary control. This stage of the swallow begins after food which has been masticated has been gathered together in the mouth and formed into a bolus which is passed from the posterior tongue through the faucial arches. As the bolus begins its descent from the

posterior tongue through the hypopharynx to the upper esophageal sphincter, the swallow becomes reflexive. Breathing stops at this time as the epiglottis covers the airway entrance, the vocal folds adduct or close to further protect the upper airway, the larynx moves upward and forward, the velopharyngeal port closes to prevent nasal regurgitation, and the upper esophageal sphincter opens [4]. This process occurs in less than 2 sec [3] and is essential to protection of the airway during feeding, drinking, and when managing saliva. When impaired, a condition referred to as dysphagia, food, drink, and/or saliva can penetrate the upper airway to the level of the vocal folds, or become aspirated below the vocal folds. Aspiration pneumonia is a potentially deadly condition manifested by a sudden spike in core body temperature and acute onset of upper respiratory infection.

Both normal and pathological conditions can affect the swallowing reflex. Normal aging results in psychomotor slowing, muscle atrophy, and reduced peristaltic muscle action. Slowing and degradation of the swallowing reflex is no exception. An aging swallow reflex commonly results in increased incidence of laryngeal penetration during the swallow in normally aging individuals [1]. In addition to the observable peripheral effects of aging upon the swallow reflex, central nervous system changes have been identified. Older individuals have been found to activate more cortical sites during swallow than do their younger counterparts, possibly indicating a change in the neurophysiology of the swallowing reflex over time [2].

A primitive swallowing reflex has been observed in those with neurological immaturity and/or neuropathology. This reflexive response is normally observed in infants only. The primitive swallowing reflex can be elicited by a puff of air to the maxillary-mandibular and maxillary-ophthalmic regions of the face and there is speculation that the primitive reflex could be exploited to improve swallow safety in those with neuropathology and/or immature nervous systems [5]. Other static and progressive neuropathologies which commonly affect swallow include cerebrovascular accident (CVA) or stroke, amyotrophic lateral sclerosis (commonly referred to as Lou Gehrig's disease), Parkinson disease, cerebral palsy, and traumatic brain injury.

Anatomical defects can result in an impaired swallow reflex as well. Supraglottal laryngectomy may result in the surgical removal of the epiglottis, the ventricular vocal folds, and/or other tissue above the level of the true vocal folds. Partial laryngectomy may result in the loss of a portion or an entire true vocal fold. The loss of these airway protective mechanisms puts an individual at risk for aspiration. In addition, irradiation of the pharynx for

treatment of tumors commonly results in an impaired swallow reflex and dysphagia due to reduced peristaltic movement of irradiated muscles.

Dysphagia is most commonly diagnosed and treated by a speech-language pathologist. The swallowing reflex is commonly screened informally by a speech pathologist. When the reflex appears delayed, weak, or otherwise disordered, the speech pathologist will often recommend that a modified barium swallow study (MBSS) be performed in fluoroscopy in conjunction with a radiologist. The speech pathologist and the radiologist can determine which consistencies of food and drink are best to maintain a safe swallow, as well as any postural or behavioral modifications necessary to improve swallow safety. In addition, the speech pathologist may target elicitation of the swallowing reflex through various sensory methods in an attempt to reduce or eradicate dysphagia. Persons who cannot or do not respond to postural, behavioral, and/or food consistency modifications and who remain at risk for aspiration may demonstrate the need for alternative feeding methods including temporary placement of a nasogastric feeding tube, or placement of a more permanent gastrostomy tube.

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Swallowing Response

► Swallowing Reflex

Switch-Hitter

► Bisexual

Swyer Syndrome

Synonyms

XY gonadal dysgenesis

Definition

A type of hypogonadism in which there is a uterus and fallopian tubes, but no functional gonads present to induce puberty in an individual with XY chromosomes (male chromosomes) but an external female appearance. These individuals instead have clumps of tissue called streak gonads, which may become cancerous later in life and need to be removed.

Description

Swyer syndrome is a fairly rare syndrome, occurring in approximately 1 in 30,000 people. It is most commonly caused by a SRY mutation that prevents the production of the sex-determining region on the Y protein (usually male) or produces a nonfunctioning protein. Since, the male determining protein is faulty individuals with Swyer syndrome will by default develop female sex organs. This syndrome is typically not genetically linked but can be passed on by a father who has a mosaic SRY mutation (in some cells but not others) or in rare cases has the SRY mutation but is not affected by it. In cases where the SRY mutation is inherited, the syndrome is said to be a Y-linked inheritance syndrome. The syndrome can also be caused by a NR5A1 mutation; similar to a SRY mutation, a NR5A1 mutation can be spontaneous or inherited. Another mutation that can cause Swyer syndrome is the DHH gene mutation, which is inherited in an autosomal recessive pattern (both parents are carriers). A mutation in the NR0B1 gene can also cause Swyer syndrome and is usually a X-linked inheritance.

Individuals with Swyer syndrome are usually raised as females and typically identify with the female gender. Hormone replacement therapy is a viable option, and can be started during adolescences to induce menstruation cycles and develop secondary sex organs. Also, hormone replacement therapy helps to prevent reduced bone density, which can be an issue for individuals with Swyer syndrome. However, due to lack of gonads these individuals cannot produce eggs, but may become pregnant through a donated egg or in vitro fertilization.

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Syllable Structure

► Morphology

Syllogism

► Deductive Reasoning

Symbolic Play

► Dramatic Play ► Pretend Play

Symbolic Thought

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Synonyms

Internal symbols; Pretending actions; Thinking symbolically

Definition

For young children to engage in making up or imagination by acting as if things are real when they are not real. Symbolic thinking is a cognitive stage of development in young preschool age children.

Description

Symbolic thought is common for children to engage in through the process of pretend or make believe. Young children express symbolic thoughts by reenacting actions of parents or care givers by using various objects that represent what they pretend them to be. An example is children playing in the dirt to make food. The children imagine themselves to be other people or animals also using drawing, writing, singing and talking [1].

Relevance to Childhood Development

Caregivers and parents can help in their children's development by understanding mirroring plays an important role in the development of symbolic thought. Language develops by symbolic functions. The child is able to

imagine behaviors of adults observed in the past and to reconstruct the behaviors by make-believe. Having available dress-up clothing, paper, crayons, empty boxes and containers help in this development. Various cultures have items representing different foods, dress, and tools that caregivers can include when caring for children [2].

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Sympathetic Activation

► Anxiety

Sympathy

► Empathy

Symptoms Checklists

► Revised Children's Manifest Anxiety Scale: Second Edition

Synaptic Pruning

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Definition

Synaptic pruning refers to the process by which extra neurons and synaptic connections are eliminated in order to increase the efficiency of neuronal transmissions.

Description

Beginning in the earliest embryonic stage and lasting until approximately 2 years of age, new neurons and synapses

are formed at an amazing rate, at times reaching 40,000 new synapses formed per second [2]. By the end of this process individuals are left with far more neurons and synapses than are functionally needed and/or preferred. Synaptic pruning is the process by which these extra synapses are eliminated thereby increasing the efficiency of the neural network. The entire process continues up until approximately 10 years of age by which time nearly 50% of the synapses present at 2 years of age have been eliminated [2]. The pattern and timeline pruning follows varies based on brain region. Again the process is intended to increase the efficiency of the neurological system. In this way, synaptic pruning is not random [3]. Rather, synaptic connections that have been frequently used and thus strengthened through sensory and cognitive input as well as motor and cognitive outputs are spared [3]. Those connections that have been weakly reinforced and are no longer functional or those that are redundant with connections of adequate strength are “pruned” away [1].

The idea that pruning continues up to 10 years of ages ties in with the concept of brain plasticity in early age. Specifically, early in life with pruning not yet complete young children still have extra synaptic connections in place. If an insult occurs to the brain, impeding the functionality of conditioned (i.e., strengthened) synaptic connections, extra and/or redundant connections which have yet to be pruned may then be utilized in place of the damaged pathways thus preserving the function itself.

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Syntax

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Synonyms

Grammar; Lexical configuration; Morphology; Sentence structure

Definition

The rules and structures that govern the construction of phrases or sentences.

Description

Brown [1] suggested that researchers have long been investigating the order in which children develop and understand the various components of grammar and syntax. It is generally believed that children are able to acquire language proficiency across environments and understand the language structures through the notion that mastery of syntax is based on innate and biological structures that exist among individuals. In this biological framework, any differences among individuals are highly correlated with differences in their genetic predisposition to language differences [7].

According to this genetic explanation, languages activate children's capacity to establish the parameters of languages within appropriate syntactical structures [6]. In that regard, for children with specific language disabilities, they often exhibit high syntax errors in conversation which often lead to communication difficulties [4] resulting in major social and interpersonal problems [2]. Research has also suggested that children with specific language disabilities have phonological and lexical impediment. For example, these children have difficulties with reiterating nonsense syllables and listing words which might be attributed to inadequate phonological representation, storage, and short-term memory in phonology. Research also found that lexical representations become complex in children's later years [3]. As children's receptive and expressive language ability mature, their phonological and syntactical representations are refined and enhanced [5]. It is thought that effective access and retrieval of languages often depend on successful encoding and decoding of phonological information [8].

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Systematic Eclecticism

►Multimodal Therapy

Systemic Bias that Is Associated with a Partiality to a Sub-group or Particular Group Values

►Cultural Bias

Systemic Therapy

►Constructivist Psychotherapy

Systems Theory

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Synonyms

Cybernetics; Ecological systems theory; Family systems theory; General system theory; Systems thinking

Definition

Systems theory is a conceptual framework based on the principle that the component parts of a system can best be understood in the context of the relationships with each other and with other systems, rather than in isolation.

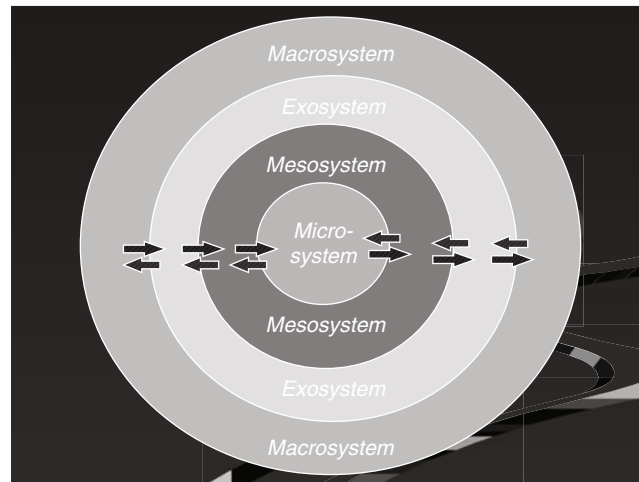
Description

Systems theory was first introduced in the 1940s by biologist Ludwig von Bertalanffy [13] and furthered by

W. Ross Ashby [1] and George Bateson [2]. Bertalanffy initially argued for open systems as opposed to the more closed systems associated with classical science. Open systems refer to systems that interact with other systems or the environment outside of the systems, whereas closed systems do not. Open systems usually include biological and social systems, whereas closed systems are mostly mechanical systems. The boundaries of open systems are more flexible than those of closed systems, which are rigid and, for the most part, impenetrable. There are various types of systems. For example, there are biological systems, mechanical systems, human/mechanical systems, ecological systems, and social systems. Systems also range from simple to complex. Complex systems, such as social systems, are comprised of numerous subsystems, each with its own boundaries. Complex systems usually interact with their environments and are, thus, open systems. Because of the interdependence between systems (or subsystems), systems rarely exist in isolation.

The principles of systems theory have been applied across fields and disciplines, including the natural sciences, social sciences, mathematics, business, and technology. Systems theory is not a single unified theory but rather a way of conceptualizing the structure and properties of an organization in terms of the relationships and interdependence among its components. Most scientists and researchers use a systems thinking approach. That is, they think in terms of systems and apply this concept to the study of systems in a variety of fields (e.g., families, biology, communication, mental health, social sciences, and technology). Thus, there are different systems theories depending on the context. For example, family systems theory is derived from the work of Minuchin [7] and Bowen [3] who applied the concepts of systems theory to families and other social systems. Family systems theory views the family as an emotional unit and uses systems thinking to describe the complex interactions within the family unit. Consistent with systems theory, a change in one person's functioning is predictably followed by reciprocal changes in the functioning of others [3].

Systems theory has also been applied to organizational development and management theory as a framework for conceptualizing organizations as multifaceted and dynamic entities comprised of smaller, interactive subsystems [6, 8, 9]. Most theorists and researchers recognize that traditional organizational theory fails to take into account many of the environmental influences that affect the efficiency of an organization and now view organizations from an open-systems perspective.



Systems Theory. Fig. 1 Ecological Systems Model. Source: From [11]. Reprinted with permission.

Relevance to Childhood Development

Systems theory has important applications to child development and the diagnosis and treatment of childhood disorders. A key assumption of systems theory is that an individual's problems are symptomatic of structural and interactional difficulties in a larger system [7]. The child's family or school is considered to be a dynamic open system, each component contributing to the maintenance of the whole system. The parts of the system are interconnected and what occurs in one system affects the other systems as well. Consequently, problems are not viewed as within the child, but rather as a function of the interaction of the child with systems to which he or she belong [10]. In other words, problems are conceptualized as systems-centered rather than individual-centered.

The work of Uri Bronfenbrenner [4, 5] provides an example of how systems theory has influenced the way psychologists and others approach the study of child development. Regarded as one of the world's leading scholars in the field of developmental psychology, Bronfenbrenner's ecological systems theory views the child as an inseparable part of a social system. This conceptual framework emphasizes the importance of the interrelations and linkages among a child's primary environments and the reciprocal influences of systems on a child's behavior and learning [11, 12]. Relationships among systems impact the child in two directions, toward and away from the child. Bronfenbrenner called these bi-directional influences. According to ecological systems theory, child development occurs in the context of four

layers or interrelated systems. Each system contains roles, norms and rules that can effectively shape development. Bronfenbrenner called these layers the (a) microsystem (such as the family or classroom); (b) the mesosystem (which is two microsystems in interaction, e.g., home-school); (c) the exosystem (external environments which indirectly influence development, e.g., parental workplace); and (d) the macrosystem (the larger socio-cultural context). Figure 1 depicts the interrelated systems of the ecological systems model. At the microsystem level, bi-directional influences are the strongest and have the greatest impact on the child. Structures in the microsystem (e.g., family, school, or childcare environments) interact with the child and affect how he or she develops; the more nurturing these relationships, the more opportunity the child has to develop and mature normally. If the relationships in the immediate microsystem are disconnected, the child cannot explore other parts of the environment, resulting in instability and negatively affecting normal development. It is this concept of interacting systems in a child's life and the importance of shared problem-solving within and between these systems that provide a potentially powerful model for developing and delivering interventions in clinical and educational contexts [10, 11].

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Systems Therapist

► Family Therapist

Systems Thinking

► Systems Theory